

Where there's a will there's a world



Working on sustainability



4th National Environmental Policy Plan - Summary

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A new, broader and more future-oriented vision

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Introduction

A new, broader and more future-oriented vision

Since numerous countries began implementing environmental policy approximately thirty years ago, much has been accomplished. The burden on the environment has been reduced in many areas. However, there are other areas that national and international policies until now have failed to address sufficiently. Climate change and the adverse effects on biodiversity and the availability of natural resources are well-known examples. The possible health risks of chemical substances and genetically modified organisms, as well as the risks of disasters, must also be mentioned here. These problems may have major consequences for the possibilities people - later and elsewhere (future generations or people in other countries) - have to fulfil their needs and to have a safe and healthy life. Dealing with these problems demands far-reaching social changes, the scope of which is often not limited to one country.

In recent decades, the economy has become profoundly 'globalised'. People can move from one place to another at an ever more rapid pace and are able to communicate worldwide. Production and consumption patterns have become increasingly international. Along with this trend, attention has been focused primarily on the economic harmonisation and liberalisation of markets, and less on social and ecological harmonisation, creating system faults, as it were, in the current social order. As a result of these system faults, we are transferring our environmental problems to other countries and future generations. This is because the effects of our behaviour on the environment and on natural resources are not immediately visible, especially not in a prosperous society. The environmental scarcity is insufficiently reflected in prices.

Dealing with major environmental problems demands far-reaching social changes. When people become aware of the consequences of their actions, they are able to take the effects on the environment into account. A new, broader and more future-oriented vision is needed. A broader vision, so that we can look across national boundaries and realise that surfeit and scarcity are unequally distributed and ecological equilibrium is being disturbed transnationally. A more future-oriented vision, because reaching a sustainable equilibrium in the long term - for instance, thirty years - demands that we make choices today. 'Sustainable living' is only possible if we put an end to transferring environmental problems. A properly functioning international trade system can help improve this, provided western countries bear their own responsibility and all the costs of their own ecological and socio-economic actions. By definition, sustainability is a transnational endeavour.

Broader and more future-oriented. This approach has resulted in a NEPP different from previous ones. Otherwise it should be noted that NEPP 3 remains in full effect for the short term. This NEPP 4 is different because it extends much further into the future, with a policy horizon extending to 2030. It also addresses problems necessitating international co-operation. These are certainly persistent problems. But looking back over the past thirty years teaches us that environmental problems can indeed be solved. Above all, with this policy document we want to make clear that sustainable living is possible while avoiding socially unacceptable results. One thing is clear: it pays to have good policies.

Lessons from the past: A retrospective of 30 years of environmental policy



It pays to have effective environmental policies. This chapter looks back on thirty years of environmental policies in the Netherlands, comparing the situation of the environment in about 1970 with the situation at the dawn of the 21st century. The most important conclusion by far is that environmental policies have made a contribution towards a significant improvement of the environment. On several fronts, environmental objectives are within reach or have already been achieved, while on others, policy has made a contribution towards staving off an autonomous increase of the environmental burden.

A sketch of 30 years of environmental policy, 1970 - 2000

Two events gave a significant impetus to the social environmental debate in the past thirty years. There was the UN world environmental conference in 1972, where governments discussed environmental damage in a global setting for the first time in history. Another major event was the report entitled 'Our Common Future' issued by the Brundtland Commission in 1987, which recognised the relationship between major environmental problems, social problems and a stagnating economy.

In 1972, the Dutch government, led by Prime Minister Biesheuvel, presented the so-called 'Urgency Policy Document' on the Environment. Now, almost thirty years later, it is clear that cleaning up urgent environmental problems requires much more time than the government anticipated at the time. Environmental pressure has clearly eased on several fronts, on others it has not. Some examples:

- Thirty years ago, *surface water* in the Netherlands was seriously polluted. That situation has since improved considerably, particularly due to the effect of the Pollution of Surface Waters Act and international agreements on the river Rhine and the North Sea.

- *Air pollution* had also become serious by the early 1970's. Sulphur dioxide, particulates, nitrogen oxide, carbon monoxide, hydrocarbons and lead compounds caused what were sometimes acute public health problems. Some of these emissions have since become more or less manageable, although particulates, NO_x and smog are still problematic.
- The problem of *soil contamination* was to a large extent still unknown in 1972. It was not until the 'Urgency Policy Document' was published that large-scale soil contamination was discovered in the Netherlands. Remediation of existing contamination is now in progress; policy is geared towards preventing new problems.
- The 'Urgency Policy Document' identified an increase in the quantities of *waste substances* and sought solutions primarily in the expansion of processing capacity. It was not until later that policy was geared towards prevention and reuse. In spite of the increased volume of waste, this problem has now become largely manageable.

A large number of environmental problems identified in the 'Urgency Policy Document' on the Environment published in 1972 have become manageable thirty years later. During that period, Dutch environmental policy has also undergone development. Attention has shifted from corrective measures to prevention and management. The majority of priority substances indicated in the first NEPP present very few problems today. Policies have also become steadily more integrated; sector legislation in the 1970's has made way for a system of laws and regulations that are better co-ordinated internally, creating an efficient policy framework and making it possible to tackle a large number of environmental problems. However, as mentioned, this has not led to the desired results with respect to several problems, problems that are discussed later in this policy document.

Evaluation of recent policy

In 1997, the government published a policy document on the Environment and the Economy, which outlined a perspective for sustainable economic development. For this to be realised, a complete decoupling of economic growth and environmental impacts is necessary. The policy document on the Environment and the Economy has subsequently been evaluated by the environmental consultancy KPMG Milieu and the Dutch Institute of Environmental Studies, revealing that the policy to hold various private sector actors accountable for their own actions has been reasonably successful. The conclusion, however, is also that bottom-up initiatives (from the private sector) will not lead to a decoupling of environmental impacts and economic growth. This requires national government policy, which should focus on incorporating environmental costs into prices. The government agreed with this conclusion.

In the preparation of the NEPP 4 the Central Economic Planning Agency (CPB) evaluated government policy for CO₂, NO_x traffic emissions, noise nuisance around Amsterdam Schiphol airport and eutrophication. Based on its evaluation, the CPB formulated these and other conclusions:

- Autonomous developments (such as technical developments or changes in the structure of sectors) often play an important role in improving environmental performance. Conversely, they render the feasibility of long-term aims uncertain.
- The most significant pitfall for environmental policy is formulating objectives without making clear how these can be achieved and what the consequences are.
- A cost-benefit analysis is important. Environmental objectives are often formulated as emission targets, but environmental benefits (e.g. in terms of the quality of the living environment) are usually not mentioned.
- If available policy instruments are not deployed quickly, environmental policy can lead to unnecessary costs.

- Environmental policies can be strengthened by expanding the use of policy instruments in line with market conditions, such as levies and tradeable emission permits.
- It should be possible for the government to compensate groups suffering extreme hardship as a result of environmental policies.
- So far, the effects of multi-year agreements and energy-saving subsidies have been relatively limited.
- Regulations must be clear, verifiable and consistent.

The government has endorsed most of the CPB's recommendations; those conclusions played a prominent role in the policy formulated in the NEPP 4. With respect to the comments on multi-year agreements, it should be noted that they did, in fact, result in increased efficiency, but in retrospect, the impression is that the stakes could have been set higher. The government will not discontinue the use of covenants and multi-year agreements, but will evaluate these policy tools in the short term. The government would also like to address the recommendation to compensate groups suffering hardship. This type of compensation would not be in keeping with the principle of 'the polluter pays'. A better solution would seem to be to set a reasonable period by which the required changes must have been accomplished.

Seven important environmental problems: The situation in 2030



There are a number of important environmental problems that we have yet to come to grips with. As long as they are not addressed effectively, we have a situation on our hands that is unsustainable and in which we transfer the environmental consequences of all our actions to others. Authoritative studies (by the UN, the World Bank, the Dutch Institute for Public Health and Environmental Hygiene and others) are resoundingly clear about the far-reaching consequences of the major environmental problems. The system faults in the current social order become particularly clear in sectors that use natural resources. The major environmental problems are closely intertwined with two predominant global developments: the growth of the population and the growth of economies. The world's population will increase from six to eight billion over the next thirty years. The global economy will also continue to grow steadily, without, it is expected, the gap between rich and poor being narrowed. These trends cannot be viewed separately from environmental issues. This chapter reviews the important problems and presents a picture of the situation in thirty years if policies remain unchanged.

Environmental problem 1: Loss of biodiversity

Situation in thirty years' time (if policy remains unchanged): global biodiversity has diminished to the extent that the very existence of groups of people is in jeopardy. Groundwater depletion, acidification and eutrophication (and all the consequences they have for national biodiversity) have far from been halted in the Netherlands.

Biodiversity is more than nature. Biodiversity, the presence of a wide variety of biological species, is a precondition for the processes that make life on earth possible: food, nitrogen and water cycles, the production of clean air and biomass, and the regulation of the climate system. Globally, biodiversity has diminished alarmingly over the past thirty years. This trend is expected to continue for the foreseeable future. If more land is used for the production of

food, for the extraction of biofuels and for urbanisation and infrastructure, more biodiversity will be lost. In 2030, the consequences of the degradation of biodiversity will be more and more noticeable. Global water and food cycles will be under pressure, which in some regions will lead to desertification, salinisation or flooding. Large groups of people will then be deprived of adequate supplies of clean, safe water and food.

In the Netherlands, as well, nature and biodiversity will remain under excessive pressure over the next thirty years. Groundwater depletion, acidification and eutrophication are the predominant threats. It is expected that by about 2020 the environmental conditions for half of the nature areas in the Netherlands will still be insufficient to accomplish sustainability targets. The pressure is expected to ease somewhat after that. Over half of acidifying emissions in the Netherlands and the overwhelming proportion of the nitrogen surplus are related to the production of goods for export. Groundwater depletion is also closely related to export.

Environmental problem 2: Climate change

Situation in thirty years' time (if policy is unchanged): CO₂ emissions will have doubled globally; the climatic system will be dangerously affected.

Human actions are a significant cause of global warming. The increase in global prosperity results in ever growing energy consumption and, if policy is unchanged, disproportionate CO₂ emissions. The climate is changing as a result of the increasing concentration of CO₂ (and other greenhouse gases) in the atmosphere. If climate change is to be kept within acceptable limits, global emissions will have to be stabilised at the present level in 2030 and then be halved by the end of the century. Instead, the world is heading for twice the CO₂ emission levels between now and 2030.

Calculations in models predict an average temperature increase of 1.4 to 5.8 degrees and a sea level rise of 9 to 88 centimetres by the end of the century. The effects of climate change will differ from region to region. In one, precipitation will intensify greatly, as will the risk of floods; in another, precipitation will decrease and water supplies will be under threat. Developing countries will be hit harder than industrialised countries because they are more reliant on activities susceptible to climate change and less adaptable. In the Netherlands, winters will become wetter and warmer and the summers will be drier, while summer rainfall will be increasingly associated with storms.

Climate change will have an impact on human health as well (i.e. as a result of extreme cold and heat or because illnesses will acquire different distribution patterns). There will also be major consequences for agriculture; ecosystems will be radically disturbed. Finally, there is also a small chance that the global climate will become derailed entirely, e.g. because the warm gulf streams in the ocean stop flowing or because the West Antarctic polar cap melts. The effects of such a destabilisation would be unthinkable.

Environmental problem 3: Over-exploitation of natural resources

Situation in thirty years' time (if policy remains unchanged): the global availability of renewable resources will be seriously threatened.

Natural resources are all those resources people use during the course of their lives. A distinction is often made between renewable natural resources (such as wood, fish, fresh water, clean air, soil fertility) and non-renewable resources (such as ores, minerals and fossil fuels).



The availability of *renewable* natural resources is under pressure in the short and long term. Already, forty per cent of the world's population lives in areas with excessive or insufficient water. This percentage will only increase in the years to come. Up to 2030, more and more natural areas will be given over to agriculture, even areas less suited to that purpose. At the same time, agriculture will suffer increasing pressure from urbanisation; a substantial area may also be used for cultivating biofuels. Given these circumstances, vulnerable soils will continue to be stripped and primeval forests logged for some time to come. With prudent management, fishing catches can be sustainably increased by about ten million tonnes a year. However, as long as management remains unsustainable, fishing catches will decline. About sixty per cent of ocean fish stock is already at or nearing the level at which catches will decline. If this continues, fish stock will be greatly diminished by 2030.

For *non-renewable* resources, the problems are different. In the 1970's, there was fear of a rapid depletion of supplies of raw materials and energy, but that concern has since faded into the background. The environmental problems connected with the extraction, production and use of raw materials are more acute. Depletion does, however, play an indirect role: extraction of poorer supplies usually goes hand in hand with larger claims on space and energy and more environmental damage.



Environmental problem 4: Threats to health

Situation in thirty years' time (if policy remains unchanged): we will be confronted with health problems that are not yet visible.

Many people have concerns about the health effects of chemical substances and products used on a large scale. Environmental emissions (direct or via products) of a limited number of substances have been reduced, but the use of (new) substances is rising sharply. With respect to most of these substances, little or nothing is known about the possible risks to humans and the environment, nor about the health effects of chronic exposure. Needless to say, this is cause for alarm.

Whereas the pollution of the twentieth century was predominantly chemical in nature, it seems that it will have a more biological character in the twenty-first. Globalisation has eliminated barriers to the movement of goods and people, enabling insects, bacteria and fungi to spread more easily to areas without natural enemies. At the same time, that very same globalisation lengthens and complicates product chains, rendering it more difficult to know whether food is being handled safely down the line.

Many people associate radiation with nuclear power stations. But electromagnetic radiation (high voltage power lines or mobile phone masts) is also a cause for concern. The Dutch National Health Council has studied whether people living close to high voltage power lines have an increased risk of illness. There is a correlation between living near suspended high voltage lines and the incidence of leukaemia in children. According to the National Health Council, it is unlikely that radiation around mobile phone masts has detrimental effects.

Besides the effects of chemical substances, food and radiation, traffic and water quality also affect human health. The harmful effects of traffic are not expected to be reduced in Europe between now and 2030. Surface water quality will barely improve given current policy.

Increasingly, people are confronted with different threats to health and safety at the same time as they are exposed to different environmental problems. Even if these problems can be contained within the standards, the combined effect of all those threats is uncertain. Their cumulative effect may result in health damage.

Environmental problem 5: Threats to external safety

Situation in thirty years' time: the vulnerability of the population is likely to be increased

Over the past fifteen years, more than three hundred accidents involving environmental damage and/or victims in Europe have been reported to the European Commission. Large-scale accidents are still slightly on the rise. The number of large-scale accidents per unit of product is showing a slight downturn, but the methods used by businesses have yet to adequately reflect lessons learnt from the past.

Dutch external safety policy aims to reduce the risks. In 1998, there were still 25,000 people living in areas with a higher than average risk of an accident (particularly near airports and railways). In 2030, production by the chemical industry will be twice to three times the current levels. The implications for risks depend greatly on the location, distance to surrounding structures and technological developments. If the chemical industry grows as expected at

existing locations, the risk to the surroundings will increase. If part of that growth occurs at specially constructed industrial estates (thus substantially increasing the land used), risks will be reduced.

External safety along transport routes for hazardous substances is a growing problem, partly because of the spatial developments along roads, railways and waterways. Trouble spots could emerge in inner cities, in particular. Railway yards merit special attention, as these are generally located in cities. The chance of a serious accident near Amsterdam Schiphol airport is contingent on the volume of air traffic, aircraft safety and where people live or work in relation to air traffic routes. The introduction of a fifth runway will somewhat reduce the risk of more serious accidents after 2003.

Environmental problem 6: Damage to the quality of the living environment

Situation in thirty years' time (if policy remains unchanged): the quality of the living environment will decline due to, for example, noise pollution and air pollution. Tranquility in nature areas will also become increasingly scarce. As a result of the disappearance of specific cultures, valuable knowledge and experience will also disappear.

In the Netherlands, the quality of the living environment is under constant pressure from increasing traffic and combinations of housing, infrastructure and employment. Severe noise pollution resulting from road traffic, air traffic and other sources will have increased by twenty to fifty per cent by 2030 if policy remains unchanged. Noise levels in many nature areas will be higher than they are at present. Air pollution continues to be a problem. In 2030, about half a million to one million people in the Netherlands will be exposed to what according to EU standards are excessive levels of air pollution. Granted, the emissions of NO_x, VOC and particulates will decrease and the ozone level will

stabilise, but the reduction targets will not be met. Ozone and particulates will lead to health complaints in 2030 too. Since the general population is ageing, it is also more susceptible to pollution and the number of complaints will rise. The air quality in Dutch cities will not improve substantially.

Damage to the living environment is a global problem. As western consumption patterns spread to developing countries, far-reaching damage will be done to the quality of the living environment there, too. If policy remains unchanged, the cultural identity of indigenous peoples will be further jeopardised; traditional knowledge of medicines, crops and sustainable use of ecosystems will thus be lost.

Environmental problem 7: Possible unmanageable risks

Situation in thirty years' time (if policy remains unchanged): today's solutions may be tomorrow's problems.

There are high hopes for technological breakthroughs being found for problems we still have to solve. The same can be said for this NEPP 4. But new technology could also lead to new environmental problems. The world can be roughly divided into two systems: one system driven by people (the world economy) and a system driven by the rest of nature (known as the 'life support system'). The life support system keeps the water cycle going, for example, and regulates the earth's temperature. Today's greatest problem is that the two systems have taken on similar proportions. Dramatic changes in one system can easily lead to instability in the other. The question is whether today's solutions might not lead to unmanageable problems in the future.



Experience has shown that, from an evolutionary standpoint, the large global human population, the large-scale potential of global transport and the control of illnesses and epidemics are relatively favourable for small species with high rates of reproduction. This concurs with the prediction that twenty first century environmental pollution will be primarily biological in nature.

There are three fields of new technology that pose potential risks because they can bolster the evolutionary advantage of small species: genetics, nanotechnology and robotics. Genetic manipulation and nanomachines occur at the same scale and robot technology adds self-reproduction to that. This affords bacteria, viruses and insects extra opportunities, possibly leading to instability of the economic and life support systems. The general expectation is that the combination of genetic manipulation, nanomachines and robots will lead to new cures, but also to extra risks.



Environmental policy ambitions and obstacles



Social context

Globalisation will also leave its mark on world developments in the decades to come. It goes hand in hand with trade in products over long distances, the use of modern means of communication, technological acceleration and transfer of culture and technology. This process does not afford everyone the same opportunities. Globalisation is directed at the integration of markets, but it disregards human needs that markets cannot fulfil. Moreover, anyone without access to markets is at risk of marginalisation. If social, ecological and institutional issues are not addressed, globalisation driven purely by the market will do nothing to achieve sustainable development.

New types of government guidance are needed in order to prevent destabilisation. When international agreements are drafted and enforced, it is necessary - now more than ever - to give consideration to the inequality of countries. Globalisation must be channelled in such a manner that the benefits are distributed to the greatest possible number of people and countries and the risks faced by the weakest participants are minimised.

It is crucial for the economic development of developing countries that they join the global system of trade. This economic development must also go hand in hand with ecological improvement, which also entails affording developing countries better access to environmental knowledge and new production technologies. In this way, globalisation can offer new opportunities to fight poverty and promote sustainable development.

The desired situation in 30 years

The desired situation in thirty years' time can be described as follows: *Environmental policy should contribute towards a safe and healthy life within an attractive living environment and surrounded by dynamic nature areas, without damaging global biodiversity or depleting natural resources, at present, elsewhere and in the future.*

This description evokes several 'quality concepts':

- A healthy and safe life...
The land, water and air, as well as food, products and drinking water are all so healthy and safe that there is a negligible risk that people will become ill or die from them. The risk of serious accidents is socially accepted.
- Within an attractive living environment and surrounded by dynamic nature....
The daily living environment is perceived as clean and attractive. Everywhere the quality of the air, the land and the water is in keeping with the function of that area and this quality does not pose any obstacles to the nature functions within the National Ecological Network. Water availability is not a problem anywhere and the rural areas are of high quality. Biodiversity and soil fertility are used sustainably.
- Without damaging global diversity or depleting natural resources...
The availability of natural resources is safeguarded; both current and future generations can fulfil their needs. The demand for renewable resources is in balance worldwide with the supply. Non-renewable resources are available long enough to allow for the development of good alternatives. Biodiversity is such that the supply of genetic material remains adequate.

The obstacles

Although environmental policies in recent years have been reasonably successful, major environmental problems have not yet been adequately addressed. There are seven interrelated obstacles standing in the way of solutions to the major problems:

- **Obstacle 1:** Unequal distribution. Unequal distribution impedes the possibilities of numerous countries for sustainable development. Poor countries often have no other choice than to generate income by selling natural resources, without paying heed to long-term considerations.
- **Obstacle 2:** Short-term thinking. It is evidently difficult for people and countries to think of the consequences of their actions beyond the present. Many solutions fall by the wayside because of excessive attention to the short-term horizon. When decisions have to be made, vested interests are given greater weight than interests connected with 'elsewhere' and 'later'.
- **Obstacle 3:** Fragmentation and institutional shortcomings. Addressing major environmental problems means interfacing with many policy areas, but the institutions concerned are inadequately structured to find cohesive, sustainable solutions. The same goes for international efforts:
co-ordination of environmental issues lags behind co-ordination of economic matters. Due to inadequate administrative co-operation, many solutions go unutilised.
- **Obstacle 4:** Shortage of policy instruments. Market mechanisms can hardly be used to tackle large environmental problems because environmental costs are not yet reflected in prices.
- **Obstacle 5:** The ones causing the problems are not the ones solving them. Parties involved in an environmental problem have an insufficient interest in solving it, especially when there are risks involved. As a result, solutions do not find their way to the market.

- **Obstacle 6:** Uncertainties. Solving major environmental problems requires system innovation and long-term investments. However, system innovations go hand in hand with greater uncertainties.
- **Obstacle 7:** Lack of precaution. For most decisions, costs and benefits that manifest themselves elsewhere or later are not clearly visible. Consequently, adequate precaution is often not observed when decisions are made.

System innovation towards sustainability



If we want to achieve the aims for 2030, it is not enough to continue or intensify current policies. After all, current policies do not adequately take into account the obstacles to sustainable development, which can be regarded as system faults in the economy and institutions now functioning. This chapter describes the policies with which the obstacles outlined in chapter 3 can be overcome.

Guiding principles

Environmental policy for the near future is based on several clear principles:

- Sustainable development (the environmental, economic and social quality dimensions are managed in a balanced way);
- Prevention (adverse effects of activities must be prevented);
- Precaution (not waiting to take action against serious threats until scientific evidence has been provided);
- Prevention at source;
- The polluter pays;
- ALARA (As Low As Reasonably Achievable; the best protection that can be reasonably demanded).

These principles have been set down in official regulations, partly as an extension to Article 174 of the EU treaty. The way in which this is being done is part of the discussion on the future of environmental legislation oriented towards sustainable development in a responsible society. This codification pertains not only to the Dutch Environmental Management Act, but also legislation in other relevant policy fields (e.g. spatial planning, traffic and transport, energy, agriculture and technology policy).

A new policy framework

Sustainable development requires integrated policy. Social costs and benefits will always have to be considered as being part of the picture. Only then can environmental aims and objectives of other relevant government policies be balanced against each other.

Ambitions and objectives are formulated at three levels. For the long term, guiding objectives are important. For the short and medium term (up to ten years in the future), a system of measurable objectives must be created (obligation to achieve a given result or obligation to perform to the best of one's ability). Finally, the actual missions are the concrete translation of those objectives to the social players involved.

A pro-active international negotiating strategy is necessary to tackle a large number of environmental problems. The success of such a strategy depends to a large extent on international agreement on objectives and measures. If efforts to conclude international agreements succeed, the Netherlands is willing to impose far-reaching obligations to achieve results in conjunction with other European countries. Otherwise, obligations to perform to the best of one's ability make more sense. Unilateral policy is rarely an option. The EU is the primary framework in which the Netherlands can conclude binding agreements, also for global environmental issues. Another element of the international context is that prosperous countries will have to take on a greater share of international environmental obligations. The willingness is there.

If economic growth is not to adversely affect the environment, generic government policy is needed, focused on integrating environmental problems into prices. This will only be possible for international environmental problems if

there is international agreement on the objectives. National choices will have to be made to internalise the environmental costs of national environmental problems, even if these have implications for the competitive position of businesses. After all, these implications are in fact a part of the costs and are consequently to be included in all the national social choices to be made.

Precaution is the guiding principle for policy in the field of health and safety. This means early identification and estimation of risks and appropriate measures. Appropriate means that the risk is balanced against the social usefulness. If the risks are hard to estimate, the maximum imaginable risk will be assumed.

The role of the government

When it comes to addressing the major environmental problems, the government is the obvious institution to oversee all parties, activities and processes having an impact. The government also sees to it that the interests of future generations and other countries are not left out of the equation. It is the job of governments to bring parties together and to stimulate the necessary private sector initiatives. Governments must promote the development of knowledge and help in the implementation of new technology. They create the circumstances for businesses, citizens and lower administrative levels to be able to do their own jobs. In addition, governments will also have to play a steering role. It is the government that creates frameworks and preconditions and modifies them where necessary. The concrete enforcement of regulations is the responsibility of other (lower tier) governments, but this will have to be done in the same way throughout the country. There is no doubt that central co-ordination is indispensable to the enforcement of regulations pertaining to health and safety.

New policy instruments

The major environmental problems also require new policy instruments that must help to break down the obstacles identified. The tools must be chosen in such a way that:

- developments in the international arena are given the greatest possible consideration;
- they target the environmental problems themselves as directly as possible;
- parties who are themselves involved have a stake in addressing the environmental problems;
- the choice of resources (how are we to accomplish the task?) is left up to the private sector itself as much as possible. The government does, however, set the limits in order to prevent new non-sustainable effects.

Instruments with a greater focus on market mechanisms comprise a necessary addition to existing policy instruments. The great advantage of these is that a price tag is put on environmental problems that are presently being transferred. Market-oriented instruments could be levies or taxes, as well as a system of tradeable emission permits in combination with rock solid environmental objectives. The benefit of a system of tradeable emission permits is that it offers reasonable certainty that targets will be met. The benefit of levies and taxes is that the costs can be estimated. Both types of instruments will be increasingly shaped by agreements at the European level. The advantage is that international agreement boosts effectiveness and reduces the risk of competitive relations being disturbed. International tradeable emission permits are preferred if countries have to meet individual emission targets and there are differences in marginal prevention costs. Emissions permits would make it possible to achieve the required reductions at the lowest costs.

With the aid of covenants, several significant environmental successes have been achieved (such as reduced levels of priority substances). However, the implementation of covenants is not always successful. They must be drawn up, implemented and enforced in such a manner as to ensure that environmental targets are reached. Present covenants are to be evaluated in a study in order to determine the actual environmental successes achieved, as well as the critical factors of success and failure. Based on this study, a standpoint on the function of covenants in environmental policy, partly in relation to other policy instruments, will be determined.

Transition policy

Solving the major environmental problems requires system innovation; in many cases this can take on the form of a long drawn-out transformation process comprising technological, economic, socio-cultural and institutional changes. The period until such a transformation is complete can be seen as a transition. During the transition, objectives are formulated and modified and interrelated policy instruments are applied. Transitions require a type of co-ordination by the government with the concepts of uncertainty, complexity and cohesion at its core. Long-term thinking is the frame of reference in which short-term decisions must be taken. Transition management requires that the government learns to deal with uncertainty, in part by working with scenarios, paying attention to the international dimension of processes of change and keeping options open as long as possible. In the following chapters, the principles of transition management are applied to the major problems identified in chapter 2 of this policy document.

Emissions, energy and mobility:
Transition to a sustainable energy system





An energy system (used in a broad sense here, i.e. including transport) is only sustainable if the energy sources used are adequately available now and in the future, if the effects of energy use are not harmful to nature and humankind now and in the future, if the supply is reliable and safe, and if everyone has access to affordable energy.

The current energy supply is not sustainable, partly because it is responsible for the lion's share of emissions of greenhouse gases. Also, the World Energy Assessment (WEA) has discovered that two billion people have no access to a reliable and affordable energy supply, that the use of traditional fuels results in substantial health damage, that many countries are reliant on imports of fossil energy and that the earth has a limited capacity to absorb all the emissions resulting from global energy consumption (greenhouse gases, acidifying emissions, volatile organic compounds (VOCs) and particulates).

Main tenets of policy

The Follow-up Policy Document on Climate Change indicates that, in order to prevent adverse effects on biodiversity, global warming cannot increase more than 2°C compared to the pre-industrial level. Moreover, the rate of warming must be slower than 0.1°C per decade and the sea level must not rise by more than 50 cm. These figures are also the starting point for this NEPP 4. The guideline for acidification and large-scale air pollution is that these must not impede the nature objectives of the Dutch National Ecological Network in 2030. Here, too, the guideline is that the health risks resulting from air pollution must be negligible.



Based on this, the National Institute for Public Health and Environmental Protection (RIVM) has set the following normative objectives for Western Europe for the year 2030 (assuming global distribution of CO₂ emissions on the basis of equal emissions per capita):

- CO₂: 40 to 60% emission reduction as compared to 1990;
- NO_x: 80 to 90% emission reduction as compared to 1990 (70 - 120 ktonne);
- SO₂: 80 to 90% emission reduction as compared to 1990 (25 - 40 ktonne);
- VOC: 75 to 90% emission reduction as compared to 1990 (50 - 120 ktonne);
- particulates: 85 to 95% emission reduction as compared to 1990 (5 - 10 ktonne).

Current thinking about energy is unilaterally focused on the scarcity of fossil fuels, the direct costs, and the local and regional environmental effects at present. This will have to change. The energy issue is a global problem; the transition to a sustainable energy supply system is impossible without involving the economic expansion of developing countries. Energy prices will also have to reflect social and environmental costs. The supply of energy sources must be expanded to include renewable sources, in addition to a responsible use of fossil sources. In the context of the transition to a sustainable energy system, policy will primarily have to target emissions of CO₂ and NO_x. Ultimately, a drastic reduction of these two would also cut the emissions of other environmentally harmful components. If this does not take place, additional policy will be needed.

Tackling energy-related emissions is an issue for global and European co-operation. As long as global co-operation makes progress in the area of CO₂ reduction, the Netherlands will do its utmost to make further agreements and to comply with them. If this co-operation falters, the Netherlands will continue to do its utmost to reduce other emissions (in the EU context).

Conceivable, feasible and affordable

The transition to a sustainable energy system requires fundamental innovation in the field of energy supply. Three technological aspects can be distinguished here:

- the use of renewable energy sources;
- reduction of energy consumption for each activity;
- advanced energy technology (primarily clean fossil energy technology).

If there is international agreement on the necessity of a concerted approach, the transition is conceivable, feasible and affordable. A review of possible directions for solutions conducted by the Dutch National Institute for Public Health and Environmental Protection and the ECN attested to this feasibility, for example. If all options are employed, the required reduction of CO₂ emissions is achievable in the Netherlands; there would even be some surplus. If one option (such as nuclear energy) is scrapped, the surplus will be eliminated. Various estimates reveal the affordability of the transition outlined. The estimated costs are of the same scale as the costs of the current energy system.

Several obstacles stand in the way of the transition to a sustainable energy system. For instance, the discrepancy between the North and the South is a significant dilemma, signifying that wealthy countries will have to bear a greater share of reduction obligations. Those who have caused the problems identified still have an insufficient interest in tackling them. The direction in which technology will develop is also still uncertain. In order to break down the barriers, the government will develop policy tools that include environmental costs in energy prices whenever possible. Uncertainties can be reduced through initiatives in the areas of research, development and demonstration projects, as well as selective incentives for introduction in the private sector.

The transition agenda

The NEPP 4 contains an extensive transition agenda for the abatement of energy-related emissions.

Most importantly:

The general initiatives include the endeavours of the Netherlands in international negotiations on such matters as the Climate Protocol, acidification and large-scale air pollution. Elimination of non-sustainable subsidies is also part of this, as is combating non-sustainable side effects of emission-reducing measures.

Tradeable emission permits and green taxes will play an important role in the renewal of policy tools. It is important that these policy tools take shape in the international context as well.

The transition agenda contains numerous initiatives aiming to render mobility sustainable. The major aspects are incentives for the development and application of efficient, clean vehicles and cleaner fuels. The social costs of mobility are to be charged as directly as possible to the user.

An important point on the agenda for sustainable greenhouse horticulture is the switch to largely climate-neutral energy sources. In the built environment, as well, the use of climate-neutral energy sources is to be promoted. The current methods for calculating Energy Performance (energy performance standard, energy performance on location and energy performance advice) must be adapted accordingly. Energy conservation also requires constant attention. For now, specific research policy remains necessary for the energy supply system. As an extension of the transition to a sustainable energy system, a strategy of publicly funded activities in the area of research, development and demonstration projects is being developed.

Funding

Additional financial support from the national government is needed particularly for initiatives in the field of social involvement. This mainly concerns research, development, demonstration projects and introduction into the private sector. How these costs are to be covered will be worked out further with those involved. The costs of specific measures will have to be borne mainly by target groups: an estimated investment of NLG 150 to 500 billion (€ 68 to 227 billion) in the period up to 2030. In addition, measures require additional use of resources by the national government of nearly NLG 3,000 million (€ 1,360 million) in the period up to 2010. Of this, NLG 282 million (€ 128 million) is to be found in the extra budget resources of the Ministry of Housing, Spatial Planning and the Environment and over NLG 1,500 million (€ 680 million) is to be funded by fiscal measures. A sum of NLG 1,200 million (€ 545 million) is claimed as part of the budget for national economic restructuring (in Dutch the so-called ICES budget), submitted by the Ministry of Housing, Spatial Planning and the Environment and the Ministry of Economic Affairs. This issue is part of a broader 'ICES' decision which will be taken in the next term of government (2002-6). In addition, existing resources of the Ministry of Economic Affairs for energy policy, NLG 1,400 million (€ 635 million) annually, are to be reprioritised.

Biodiversity and natural resources: Transition to sustainable use



Biodiversity and renewable natural resources (fertile soil, fish, forests, etc.) are humankind's biological 'life insurance'. This life insurance is under increasing pressure. Biodiversity and resources will have to be dealt with more wisely and efficiently. The protection of biodiversity and natural resources is a fairly new policy area. Making the transition is not necessary only for the sake of ecology, but also for the economy and society in general. This is not so much about protecting species at the risk of extinction, but about guaranteeing that complete ecosystems can continue to function. Changes in ways of thinking are needed, focused on the present, while also acknowledging the well-being and welfare of future generations.

Main tenets of policy

To protect biodiversity and natural resources from damage caused by human actions, a global Ecological Network is needed as a reservoir for genetic variation and as a basis for keeping natural processes intact. This ecological network would consist of nature reserves, buffer zones and connecting zones. Nature reserves are important areas for preserving natural processes or areas where there is a wide genetic variation. Buffer zones surround them like a protective shield. The emphasis in these areas is more on the interests of the local population: fighting poverty by generating sources of income. Limited changes to the ecosystem are acceptable. Connecting zones serve as bridges between reserves.

The 'Global Commons', areas such as the oceans and Antarctica not apportioned to countries, must also be managed in a sustainable manner. Thus far, nobody has taken direct responsibility for problems such as overfishing,

overexploitation and pollution. That is why international agreements on the sustainable management of these areas and an equitable distribution of the benefits of this management, as well as on compliance and enforcement, are needed.

Agriculture must be made more sustainable in order to supply the growing world population with adequate, good and safe food. The pressure on savannahs, primeval forests, steppes and tundra must not increase further; this means that current land area devoted to agriculture must not be allowed to grow any further worldwide. Consequently, low-yield agriculture must be made more productive where possible, while improving the living conditions of the population dependent on it. Areas with a high level of biodiversity must be avoided as far as possible. Feeding the world's population requires a productivity increase of at least 1.6% per year in developing countries. If some twenty or thirty per cent of the land available for biofuels is actually used for that purpose, productivity will have to increase by 2.3% a year. It is still unclear which techniques and methods can be used to achieve this goal. A significant challenge for this second 'green' agricultural revolution is efficient use of fresh water. Thus far, productivity increases have often gone hand in hand with the depletion of ground water supplies.

Not only do rich countries lay claims on their own biodiversity and natural resources, but also on those of other (usually poor) countries in the world. Sustainable management of biodiversity and natural resources must therefore go along with socio-economic development and efforts to end poverty in these countries. This development must be guided by rich countries such as the Netherlands via the private sector (incorporating damage to biodiversity into prices), development aid and exchange of knowledge. The goal is to further integrate the preservation of biodiversity and natural resources into the policies of international organisations and funding agencies.

The availability of non-renewable natural resources (such as fossil fuels, metals and raw materials) remains crucial to the functioning of global society. Concerns about this are less important over the next thirty years than concerns about the availability of renewable resources. It is especially important that there is sufficient time to develop alternatives to non-renewable resources. In addition, their extraction and use must not give rise to other environmental problems, such as the effects of mining, the pollution of water or air, or soil contamination. Production and consumption must be largely 'dematerialised' in the interests of a sustainable society; meaning that fewer resources are required to fulfil the same needs.

Global climate change, particularly as a result of the emission of CO₂, is one of the causes of the loss of biodiversity. Conversely, damage to ecosystems also affects the climate. Synergy between climate policy and biodiversity policy is thus necessary, as a result of which further progress can be made in both areas.

The Dutch contribution

Sustainable use of biodiversity and resources is primarily a global task. Dutch policy is aimed at giving the process at a global level a kick start. At the same time, it is crucial to manage biodiversity in the Netherlands sustainably, as an extension of that global objective, and to take on a leading role. There are several areas in the Netherlands where a contribution can be made to the global Ecological Network, for example the Wadden Sea and some peat grassland areas, areas that must be sustainably protected and managed. Agriculture must be rendered more sustainable if these national areas are to contribute towards biodiversity.



As a consumer of products, trading partner and investor, the Netherlands must play its own part in rendering production and trading relations more sustainable. The key here is to pay the right price that reflects the effects on biodiversity and natural resources.

Global inequality poses a significant obstacle to solving environmental problems. The challenge is to create a situation in which poor countries can develop as they would wish and in which rich countries alter their consumption and production patterns and share their knowledge and technology.

The current economic system offers no reward for preserving biodiversity and natural resources, giving priority to short-term thinking. New distribution mechanisms need to be developed in order to incorporate biodiversity in prices. A third obstacle is that the perpetrators and victims of a problem are not always the ones who provide a solution. Western countries have the knowledge to improve the food supply in developing countries, but this knowledge is often lacking where it is needed. Knowledge and technology must be pooled so they can be put to use in regions vital from a biodiversity perspective.

It is difficult to change international organisations overnight. However, the shortcomings we have mentioned are slowly being acknowledged internationally, and people are willing to start a debate on these issues. It is thus important to embed sustainable development in the policies of international organisations and to consolidate these organisations.



The transition agenda

The NEPP 4 contains an extensive transition agenda for the sustainable use of biodiversity and natural resources. The most salient points are listed below.

- The Netherlands aims for the creation of a global Ecological Network by 2020 and the drawing up of a list of the most valuable areas by no later than 2005.
- The Netherlands is willing to help other countries draw up national development and environmental plans for the sustainable use of biodiversity.
- The Netherlands wishes to take initiatives internationally to combat deforestation. The Netherlands also aims to promote the use of sustainably produced timber and to provide consumers with clear information on this. The target is for sustainable timber to take a 25% share of the Dutch market.
- The Netherlands is committed to entering into global agreements on sustainable fishing based on the precautionary principle. These agreements must be finalised by no later than 2015. The Netherlands will also do its utmost to conclude agreements on the sustainable management of natural resources in areas not specifically allotted to individual countries. These agreements must also be finalised by 2015.
- The Netherlands will work towards translating the concept of sustainable agriculture into concrete guidelines for developing countries and will help to set up innovation centres for sustainable agriculture.
- The Dutch government is working on the formulation of a code of conduct for the use of genetic materials from developing countries and will also apply this code itself.

- Initiatives will be taken in conjunction with the business community to render production chains sustainable (coffee, cocoa, bananas, cotton, etc.). Agreements will be made with pension funds and other financial institutions to render investment portfolios sustainable. The possibilities of incorporating the adverse effects of tourism into prices will also be investigated.
- A method will be developed to shed light on the costs and benefits of changing the function of ecosystems (such as converting nature areas into farmland or urban areas).
- A dematerialisation indicator is to be created that is based on a materials flow monitoring system that takes the degree of depletion of raw materials and energy supplies into account.

Funding

The realisation of this transition will require patience. Policies must be influenced, institutional systems changed and strengthened, and the consciousness of consumers and manufacturers raised while social partners will have to make a greater contribution financially. The financial commitment to the support of developing countries and incentives for international co-operation in the interests of the sustainable management of biodiversity and natural resources will have to be covered by the 0.1% of GNP allocated for international nature and environmental policy as part of the budget for development assistance. Government activities to influence production and consumption in the Netherlands are to be funded by the budgets of the ministries involved.

Environment, nature and agriculture: Transition to sustainable agriculture



Agricultural practices in the Netherlands are not sustainable. They are in conflict with the desired direction of development of nature and biodiversity. Intensification of agriculture has led to environmental problems and an extremely fragile system. Diseases can easily arise and spread quickly within the intensive livestock rearing sector. Large-scale import of feed and minerals results in saturation in the Netherlands and depletion of the land in the country of origin. Since Dutch arable farming does not grow a wide variety of crops, vulnerability only becomes greater. There are also growing doubts about the safety of our food supply.

The issue is not whether Dutch agriculture must be made sustainable, but how and how quickly. A great deal is already changing in agriculture. This presents opportunities but government guidance is indispensable. The guiding principle is the interdependence between agriculture and nature. Nature and natural processes are important to agricultural production, while the converse is true for preserving nature, biodiversity and landscape.

Main tenets of policy

The crux is to restore a proper balance between agriculture and nature. Policy on sustainable agriculture is to be a twin-track one:

- a long-term policy over a time period to 2030 and geared towards achieving sustainable agriculture within ecological, social and economic constraints;
- a short-term policy over a time period to 2010 placing the emphasis on environmental issues and larger, vulnerable nature areas. This policy will be focused mainly on a general tightening up of environmental requirements, with an extra focus on requirements for non-land-based agriculture. Groundwater depletion, acidification and phosphates will also be the subject of a more stringent area-based approach in the zones around the National Ecological Network.

Non-land-based agriculture is becoming more similar to other economic sectors (such as industry) and will be treated as such. There is no room for this type of agriculture within the National Ecological Network. Outside this network, non-land-based agriculture must be in keeping with the character of the area. Integrated environmental targets for the sectors that are part of non-land-based agriculture will be developed for 2010 and beyond in the next term of government in the Netherlands. Besides primary products, land-based agriculture is also responsible for 'green services', such as landscape management, nature management, the preservation of culture, biodiversity and a pleasant living environment. Within this context, land-based agriculture will have to meet the required environmental conditions. Accordingly, the requirements to which land-based agriculture will be subjected will differ for each type of area.

Plan of action

Sustainable agriculture represents a combination of achieving good environmental conditions for nature and maintaining good prospects for agriculture. Sustainable agriculture is important on the one hand in terms of the quality of the rural areas, nature and biodiversity, and on the other in terms of its contribution to food production, employment and export. The food that agriculture produces must also be safe and the methods used must be based on respect for the well-being of animals. Sustainable agriculture can take different forms and is not necessarily synonymous with organic farming. There are several environmentally problematic issues that organic (small-scale and extensive) farming is finding very difficult to solve (ammonia, odour, methane). Sustainable agriculture can either be large-scale and extensive, or intensive and high-tech. In the latter case, the possibilities of technology are maximised and advanced, minimising the damage to the environment and all the links in the chain.

The innovation of area-based policy must result in the reconstruction of parts of the rural areas in the years to come - a large, complex task. Wherever possible attempts will be made to utilise existing initiatives and obligations. Eliminating ammonia emissions in and around the National Ecological Network will make it possible to substantially increase the amount of land that is fully protected against the effects of acidification and eutrophication. Under the Administrative Agreement on Area-Based Land Development, various government bodies are collaborating on this.

Environmental targets for 2030 are the starting point for the transition to a sustainable agriculture:

- Ammonia emissions (in connection with acidification and eutrophication) must be 75 to 85% lower in the Netherlands than they were in 1990. In some areas, stricter standards must be applied.
- Restoration of water systems will solve the water depletion problem. It is expected that 200,000 to 300,000 hectares of farmland will have to be converted into wetland habitat for this purpose.
- Target values for emissions correlated with fertiliser use (nitrates, phosphates and heavy metals) have been formulated for groundwater, surface water and the soil.
- Pesticide exposure must be brought down to a negligible risk level.

The transition agenda

The NEPP 4 contains an extensive transition agenda for accomplishing sustainable agriculture. The most salient points are outlined below.

- The support of farmers, consumers, nature and environmental organisations and various government agencies is needed to achieve sustainable agriculture, so a discussion between all parties in the production chain is being started. Rendering agriculture sustainable cannot be viewed separately from the entire chain from production to consumption. All parties have to shoulder their share of responsibility. Animal and environment-friendliness of processes as well as healthy and safe food production are vital aspects of this.
- Within ten years, environmental costs must have been passed on to the producer. At the international negotiating table the Netherlands will show its commitment to internalising environmental costs.
- The effects of Dutch agriculture in other countries are being studied. International endeavours must be made to encourage the closure of mineral cycles.
- Land-based agriculture will be encouraged to switch to sustainable agriculture and sustainable water management.
- Innovations geared towards clean, intensive agriculture are to be supported for non-land-based agriculture. In addition, the government wants to support the development of small-scale agro-production parks.
- The government will adopt the recommendations of the Koopmans Commission on restructuring dairy farming. The aim is to extensify livestock farming at a more rapid rate and reduce ammonia emissions around sensitive nature areas.
- In support of area-based policy innovation, the possibility of expanding the Reconstruction Act on Concentrated Areas of Pig Farming to include entire rural areas is being explored.

- The Netherlands will also do its utmost in the European realm to accomplish sustainable agriculture practices and area-based policies.
- The possibilities of restoring agro-biodiversity in agriculture, in part through regional products and breeding focused on diversity, are being studied. The connection between environmental issues and standards set at the company level, a differentiation of standards for different areas and economic growth of agriculture without adverse environmental effects are other subjects of further study.

Funding

The agricultural sector itself will be the party that has to make the greatest effort towards the transition to sustainable agriculture. The same goes for the environmental investments ensuing from the generic policy. This will cost the agricultural sector NLG 17 to 20 billion (€ 8 to 9 billion) in the period up to 2010.

The costs of area-based measures to create zones around nature areas cannot be borne entirely by the businesses in those zones. The government is willing to offer some support. An estimated NLG 4,000 to 4,500 million will be needed over the coming decade (€ 1,815 to 2,040 million), NLG 450 million (€ 204 million) of which is to come from existing resources. For the additional investment, the budget intended for the general economic restructuring of the the Netherlands (the ICES budget referred to earlier) can be utilised to a maximum of NLG 2,000 to 2,500 million (€ 910 to 1,130 million). This claim is part of a broader policy decision to be taken during the next term of government (2002-6). The remaining NLG 1,500 million (€ 680 million) is to be supplied from the 2003 budget and will part of the programme of the new term of government. An extra commitment of NLG 50 million (€ 23 million) is needed for research and experiments until 2010, which could be possibly funded by the ICES Knowledge Infrastructure budget.

Chemical substances policy innovation



Europe is one of the largest regions for the production of chemicals; 20,000 to 70,000 different types of chemical substances are in use. The use of these substances is not sustainable, since little is often known about the risks. Many of these chemical substances are scattered diffusely, rendering it even more difficult to predict potential effects. For this reason, there is an urgent need for a new chemical substances policy to eliminate the gaps in information.

Twenty years of national and international chemical substances policy have certainly made a contribution towards a cleaner, safer environment. The same goes for efforts made by the business community, certainly in the Netherlands. Yet there is also concern in the Netherlands about the safety of chemical substances and products and the consequences for the living and working environment. There are very few chemical substances for which the risks have been thoroughly investigated.

Objectives of chemical substances policy

Chemical substances policy innovation must ultimately result in chemical substances posing no or negligible risk to humankind and the environment. This must also be the case for the entire life cycle, from raw material all the way to waste processing. This objective applies in principle to all chemical substances in all applications (including pharmaceuticals and pesticides) and must be achieved by 2020. Where necessary and possible, the new policy is to be laid down in regulations and legislation.

The new chemical substances policy places emphasis on the general legal obligation of the business community. Some of the implications for businesses include requirements for:

- giving safe handling of substances and products a clear place in their organisation;
- collecting data on the hazards and risks of chemical substances and products;
- having demonstrably qualified personnel on staff;
- minimising the risks of chemical substances and products in each phase of the life cycle;
- ensuring that safe working processes are used;
- being accountable to the public concerning measures they take to limit risks.

The government will encourage the business community to achieve this quality improvement.

Three steps to 2020

In the year 2020, the business community must have taken risk-reducing measures prescribed by the government for all chemical substances. That is to take place in three stages:

- By the year 2005: the business community is to have drafted verified, publicly available 'chemical substance profiles' on the basis of a quick scans by the end of 2004 on all chemical substances used in the Netherlands. The substances are to be categorised according to the required concern (from 'very serious concern' to 'no concern'). The business community is to take the measures that correspond with the specific category. The aim is to have the chemical substance profiles drawn up by the end of 2002 and the categorisation by the end of 2004. Use (and emission) of those chemical substances that are impossible to classify can be restricted or prohibited after 2005.
- By the year 2010, the business community is to have collected additional data and, if necessary, conducted risk evaluations for chemical substances that, on the basis of the quick scan, give reason for concern and for chemical substances produced in great quantities annually.

- By no later than 2015, the business community is to have provided relevant data and, if necessary, a risk evaluation for all chemical substances sold or used in the Netherlands. By no later than 2020, the measures required to accomplish the aims of the chemical substances policy innovation are to have been taken for all chemical substances.

The government is to continue to play a significant role in dealing with chemical substances; for example, it is to balance social costs and benefits. If the risks are unknown, the precaution principle denotes, among other things, that the government will assume the maximum imaginable risk when balancing costs and benefits.

New policy will be implemented in stages. The first step is drafting an implementation programme. Then the government and the business community can conclude implementation agreements to be declared generally binding. At the end of 2002, a report on the implementation of new chemical substances policy is to be submitted to the Lower House of Parliament.

Funding

The new policy on chemical substances gives businesses the responsibility to research and report on the effects of the various chemical substances, which means that the costs of this policy innovation are to be borne primarily by the business community. In addition, the national government has earmarked a sum of NLG 45 million (€ 0.4 million) until 2010.

External safety policy innovation



Due to inconsistent enforcement and the lack of a legislative basis, current policy on hazardous substances provides no guarantees that risks to the population are minimised. In response to the fireworks disaster in Enschede and the report on it by the Oosting Commission, the government has made external safety policy a top priority. The Minister of Housing, Spatial Planning and the Environment is the co-ordinator at the national government level. The standards for external safety policy are to be given legislative status in the short term.

External safety policy targets the use, storage, production and transport of hazardous substances and the use of airports. Accordingly, policy pertains mainly to high-risk businesses and roads, railways, waterways and pipelines through which hazardous substances are transported.

Main tenets of policy

Policy innovation is based on seven guidelines:

- the general public is afforded a certain guaranteed level of protection against the dangers of hazardous substances in their environment;
- the government and political system must deal much more consciously with accepting risks in relation to the magnitude of potential disasters. The availability of safer alternatives and the possibilities of contingency plans must be included in this;
- the social costs of hazardous substances will be included in the use of those substances whenever possible;
- the policy with regard to high-risk businesses and institutions will have to give much greater consideration to transport risks;

- the number of routes over which hazardous substances are to be transported is to be restricted. The safety requirements to which transport itself is to be subjected are to be harmonised with international regulations;
- the co-ordination and allocation of responsibilities are to be clarified in order to reinforce the safety chain;
- a compulsory registration system for high-risk situations is to be created and the provision of information to citizens is to be improved.

At present, there are often no legal regulations requiring the translation of the current standards for sources of risk and spatial planning into concrete policy. Nor does current policy offer any guarantee that if risks must in fact be taken that these are at least socially acceptable. The *location-based* risk is an indicator of the possibility of deaths occurring at that location in any given year as a direct result of an accident. This risk is a gauge of the personal safety of people living or working in the vicinity of a high-risk activity. A minimum level of protection against the risks posed by hazardous substances is provided by giving the location-based risk the status of a legal limit value that must not be exceeded. The Minister of Housing, Spatial Planning and the Environment is to submit a proposal for a government decree on the quality standards for the external safety of businesses and institutions before the end of 2001. The Minister of Transport, Public Works and Water Management is to submit a similar government decree on the external safety of transport. These measures define the environmental risk for high-risk companies and transport activities. The government decrees stipulate that environmental permits and spatial plans must always be evaluated against the limits.

Government decrees also stipulate the elimination of discrepancies between existing and new situations. As quickly as possible and in any event by no later than 2010, existing situations must comply with the limits for new situations. However, there are situations where it is not entirely possible to eliminate discrepancies, e.g. as a result of

international treaty obligations (e.g. unobstructed navigation over the Western Scheldt to Antwerp) or if the necessary modification involves the large-scale demolition of existing buildings. Accordingly, the government decrees contain some exceptions in extremely special cases.

The *group risk* is an indicator of the possibility of a number of deaths amongst a group of people as a result of an accident involving a high-risk activity, taking into consideration the number of people in the vicinity. If the social benefits of a certain activity are low, if safer alternatives exist, or if there are inadequate possibilities for an effective emergency response, the group risk is unacceptable for that activity. A provision is to be included in the legislation that requires the government to account for the acceptability of group risk in decisions made for example when granting permits or adopting spatial plans. The orientation value of a group risk is a gauge. The acceptability of certain group risks based on the social benefits must be reviewed periodically (for example once every ten years). Consequently, high-risk businesses will be granted only temporary permits from now on. Permits for the transport of hazardous substances will also be time-restricted.

External safety policy will be reinforced by having transport risks, wherever in the Netherlands they may present themselves, play an important role in the granting of permits under the Environmental Management Act. Permits may be refused or granted only under certain conditions on the basis of transport risks. These conditions could pertain to the mode of transport or the quantity of hazardous substances to be transported. Integrated safety policy is to be formulated for several hazardous substance chains, in any case for chlorine, LPG and ammonia. In addition to the general external safety policy, separate policies will be formulated for each of these three substances and submitted to the Lower House of Parliament in a report. In order to acquire a better understanding of the costs of the indirect space use by the transport of hazardous substances, a study is to be conducted in the short term into the transport

flows of chlorine, ammonia and LPG. Fixed modes for transporting these substances (pipelines) will be included in this study. Before the end of 2001, a study into non-essential routes for the transport of hazardous substances will be started. Transport over these routes may be restricted or prohibited.

The obligation to prevent or minimise risks lies first and foremost with businesses. Small and medium-sized businesses working with hazardous substances still tend to pay insufficient attention to this. Legislative measures will be taken to improve safety management and risk-liability in small and medium-sized business.

The government and citizens alike must possess complete information about potentially hazardous activities. Citizens are entitled to full information about the safety risks in their living and working environments. Consequently, a mandatory registration system for high-risk situations is to be created, and the right to access to this information will be better regulated under the law.

Implementation

The Ministry of the Interior is taking the initiative to develop risk maps in conjunction with the cities and provinces. These maps must meet national criteria and will be regularly reassessed and modified as required. In addition, information on hazardous substances is vital to medical and emergency personnel. New agreements are being made with the government agencies in question; the business community is also involved in this.

External safety policy is to be implemented in three stages. First, high-risk activities are to be registered and the public authorities and citizens involved informed (to be completed by 2002). Subsequently, a review will be conducted

to check that the standards and risk values have been correctly calculated and determined, whether the correct distance criteria have been observed, whether permits are justified (and complied with), whether translation into spatial planning measures has been officially carried out and whether an adequate emergency response plan has been drawn up (to be completed by 2003). The third and final step is to fill in the necessary gaps or, if that is not possible, to cease the activity concerned. For some businesses, the only answer will be to close down (to be completed by 2010).

Of the approximately 4,000 high-risk businesses, there are several that do not currently meet the standards: 500 to 600 petrol stations selling LPG, 40 ammonia cooling plants, about 75 pesticide and chemical storage areas, some five railway yards and five companies designated as 'BRZO businesses' (BRZO is the Dutch abbreviation for Decision on Risk of Serious Accidents). If additional safety measures do not resolve this situation, these businesses will have to be closed down.

External safety policy at airports

The bill to amend the Aviation Act contains the framework for a new system of standards for Amsterdam Schiphol airport. Instead of using volume limits to determine how much air traffic is allowed, the air transport sector will have to operate within environmental limits. In terms of environmental protection, the new system must be at least equivalent to the old system. An environmental impact report is to be drawn up when the transition is made to the new system, containing an 'equivalency review' comparing the Schiphol airport Key Spatial Planning Decision with the new system of standards. The new environmental and safety limits also determine the possibilities for any further expansion of Amsterdam Schiphol airport after 2010 to include a fifth runway or any modified system of runways.

The new system of standards for Amsterdam Schiphol airport will serve as a guideline for regional airports to follow. The applicability of the Schiphol method for assessing the external safety of military air bases is also under review.

Funding

If current safety guidelines (as issued by the Commission on Prevention of disasters through hazardous substances, or CPR) are observed strictly, part of the business community will have to make investments towards rectifying overdue maintenance. This involves an estimated total amount of NLG 500 million (€ 227 million). Additional measures to eliminate specific trouble spots will cost the business community NLG 100 to 150 million (€ 45 to 68 million). If the Environmental Management Act Compensations Circular is strictly applied, some NLG 1,000 to 1,500 (€ 454 to 681 million) will be needed for business closures. The issue of relocating some railway yards includes a broader discussion on such topics as the quality of inner cities. A claim has been submitted for the sum of NLG 3,900 million (€ 1,770 million) to fund this within the overall economic restructuring budget (the ICES budget).

Our understanding of the costs of measures needed to address the problems of hazardous substance transport is still limited. The consequences for the national budget are very dependent on, for instance, the extent to which social costs will be incorporated into transport prices. Subject to certain conditions, the budgetary consequences of external safety policy can be covered to a great degree by the general economic structuring budget (ICES) from 2003. The government has officially set aside a general reserve for urgent safety matters in its budgets for 2001 and 2002.

Environment and human health policy innovation

10



Radiation policy

When assessing the acceptability of a certain use of radioactivity, the social and economic benefits must be balanced against possible health damage. Precaution plays an important role.

Following extensive debate in the Lower House of Parliament in 1994, it was decided to decommission the Borssele nuclear power station at the end of 2003. The continual unease in society associated with the consequences of possible accidents and the still unresolved problem of the permanent storage of radioactive waste both had an important influence on this decision. The government will honour its promise to shut down Borssele on the agreed date. In 1997, the Dodewaard nuclear power station was decommissioned and preparations are underway for its permanent dismantling.

The Third Policy Document on Energy states that nuclear energy is to play no further role in the Netherlands. The policy document also states, however, that it is necessary to maintain knowledge of the nuclear power industry for the sake of the supervision of existing nuclear plants and their ultimate dismantling, in order to resolve the issue of nuclear waste and to support policy to fight the proliferation of nuclear arms.

Incidents involving depleted uranium have given rise to a great deal of concern. Examples of these include the air crash in the Bijlmermeer, Amsterdam and the use by NATO of grenades containing depleted uranium. There is still great concern among those directly involved and health complaints persist. Additional attention will have to be devoted to this issue.

Approximately a third of all the radioactivity to which humans in the Netherlands are exposed on average occurs in homes: radiation originating mainly from building materials such as concrete and bricks and from accumulations of gaseous radon. Low-radiation building materials and extra ventilation will be used to reduce the radiation levels in homes.

The National Health Council has publicised the health effects of electromagnetic radiation. There appears to be a correlation between living near power lines and a slight increase in the number of cases of leukaemia in children. Recent studies in the UK and investigations conducted by the National Institute of Public Health and Environmental Protection point in the same direction. These indications provide adequate grounds for further research and appropriate measures. Based on current scientific knowledge, the National Health Council does not expect any negative health effects from mobile phone masts. These masts, often installed on buildings in urban areas, have also created concern recently among residents living near them. Standards for electromagnetic fields created by antennas will be set and antennas on dwellings can only be installed with the approval of the residents themselves.

Biotechnology policy

When biotechnology is applied, it is important to know the effects as much as possible in order to effectively assess the potential risks against the intended usefulness. The precautionary principle plays a central role in this cost-benefit analysis. Public availability of information and decision-making is one of the main aspects of government policy as well.

In the near future, the government hopes to provide incentives for the development of knowledge of biotechnology (and biotechnological innovations) through the Life Sciences Action Plan. At the same time, the use of antibiotic-resistant genes in plants is to be restricted or prohibited. The Genetic Modification Commission is being expanded to include experts in the fields of ecology, ethics and social sciences. Explicit attention will be paid to scientific uncertainties when evaluating these developments. In order to guarantee consumer freedom of choice, efforts will be made in the European arena to ensure the most complete possible labelling of products containing genetically modified organisms (or substances derived from them).

Food safety policy

The government plays an important role in the field of food safety. Consumers demand food quality guarantees. If there is a plausible but not yet scientifically proven risk of potential health effects for humans or the environment, the precautionary principle is to prevail. More and more food agreements are being made on a global level. The Netherlands is promoting new agreements that enhance food safety.

An Interministerial Committee on Food Safety with delegates from all the ministries involved was established at the end of 2000 to scrutinise current food safety policy and report annually to the government and Lower House of Parliament. In the event of an incident, this committee will co-ordinate the necessary measures.

Environment and health policy programme

New risks are becoming apparent all the time as new activities are developed and global market forces expand risk areas. In addition, there is a social trend towards a lower and lower acceptance of the risks over which people themselves have no control. Recent disasters and fires (Bijlmermeer, Enschede, Bovenkarspel, Drachten) and food problems (dioxin-infected chicken, mad cow disease) have eroded public trust in government.

Risks can be classified into various categories, each requiring its own approach:

- Risks that are foreseeable and to some extent manageable and possibly preventable. These are risks that can be reasonably predicted and against which effective measures can be theoretically taken. The approach to these is in the realm of prevention.
- Risks that are foreseeable, difficult to manage and sometimes unpreventable. Such risks could include the possibility that global warming increases the chance of explosive outbreaks of certain organisms in our environment (blue-green algae, botulism).
- Risks that cannot be foreseen, are difficult to manage and hardly preventable. Examples include recent outbreaks of HIV and Legionnaire's Disease. New pathogens that are infectious to humans erupt spontaneously, for example from related, known organisms. Due to man-made circumstances, organisms may also have the opportunity to develop explosively, thus posing a hazard (e.g. Legionnaire's bacteria). Solutions include devising a warning system and structure for emergency response if things should go wrong.

- Combined risks. Especially complex are the risks that are only suspected, but about which further information is lacking. An example is the possible damage of combined exposure to various risk factors (chemical substances, radiation, etc.), although none of the individual factors is harmful. The initial approach to combined risks is to study potential effects.

The types of risks mentioned require more research to identify hazards and risks at an earlier stage. At present, many possible risks are identified as a result of incidents, after which policies and regulations based thereon are generally modified. A more structured system of detection can prevent incidents.

The government must be open about what the uncertainties are and the attempts it is making to control them. If it is to respond effectively to concerns about risks, it is important for the government to know what citizens are concerned about. It is not sufficient to simply respond to signs of concern.

Funding

NLG 45 million (€ 20 million) has been earmarked to fund the environment and health policy programme up to 2010, covered by extra funds from the budget of the Ministry of Housing, Spatial Planning and the Environment for NEPP 4. NLG 45 million (€ 20 million) has been made available for improving the medical environmental function of industrial health agencies up to 2010, to be funded from the budget of the Ministry of Transport, Public Works and Water Management.

Environmental policy innovation for a quality living environment



Environmental policy enhances the quality of the living environment. Perceptions of the quality of the living environment are shaped in part by how soil contamination and air and water pollution are tackled by safety risks, industry, noise pollution and waste collection. Issues such as the housing supply, employment and services also play a role, as do green space, nature, and the diversity of characteristic areas.

Allocation of tasks between public authorities

The government is making three changes intended to strengthen the contribution environmental policies make to the quality of the living environment:

- greater cohesion between environmental and spatial policy;
- greater cohesion between the policies at the various levels of government;
- additional responsibilities for lower tiers of governments for the local living environment.

In many cases local government is better able to improve the quality of the living environment than the national government. Accordingly, it must be afforded greater freedom and as much integrated responsibility for the local living environment as possible. The starting point is that this should result in improvements to the quality of the living environment. The national government will set rigid minimum standards for environmental quality and monitor those limits in conjunction with the lower levels of government during implementation and enforcement.

Environmental qualities for various types of areas will be formulated jointly: the classification of areas is derived from the Fifth National Policy Document on Spatial Planning. Administrative agreements will be geared in part towards compliance and enforcement, citizen input, clear decision-making and the possibilities for stakeholders to appeal.

When assessing the quality of an area, values other than just the environment must also play a role. In some cases, it

is socially justifiable to aim for higher quality at those locations where social, economic and environmental problems reinforce each other. Additional attention will also have to be devoted to incorporating national interests, such as the National Ecological Network and national infrastructure.

The provinces and the national government are already obliged by law to draw up environmental policy plans. Now that municipalities are to have more strategic tasks in the realm of environmental quality, a municipal policy vision on the desired quality of an area is required. A municipality can draw up this vision as a separate environmental policy plan or as a recognisable part of a regional plan. A legislative basis for this obligation will be created when the Environmental Management Act is amended.

A large number of locations in the Netherlands do not yet meet minimum environmental quality standards, resulting in poorer health due to air pollution, noise nuisance or excessive risks of accidents. To achieve the desired quality, possibilities afforded under the Fifth National Policy Document on Spatial Planning for restructuring the urban and rural areas must be exploited whenever possible.

New noise targets

The NEPP 3 already stated that the target for noise abatement policy (no more victims of serious nuisance in 2010) was too ambitious and that this target would have to be modified. NEPP 4 contains a new target for noise policy: achieving acoustic quality in 2030 in keeping with the use of the relevant area. Acoustic quality means that area-based noise can be heard and that it is not drowned out by noise emanating from outside the area. In order to achieve this, the limit value of 70dBA in homes may no longer be exceeded in 2010. The acoustic quality in urban areas must also

be substantially improved by modifications to the national infrastructure by 2010 as a result of 50% of situations with a noise level of more than 60dBA being remediated. The acoustic quality in the National Ecological Network may not be worse in 2010 than that in 2000.

An area-based approach will be pursued for achieving the objectives in the urban areas and the National Ecological Network. Under administrative agreements on the living environment, the authorities involved will determine by no later than 2005 the acoustic quality desired in their own areas.

In an ambitious innovation programme, all national and international knowledge on noise nuisance is to be mobilised. Attention is to be devoted to improving measures targeting the sources, such as quieter asphalt. The approach targets situations where the noise in residences has exceeded the government-agreed level as a result of unforeseen increases in traffic. This problem affects areas along roads and railways. Noisy passenger trains will be gradually replaced by quieter trains. The noise created by goods trains will be addressed through technical improvements and new maintenance methods.

The principle that costs connected with environmental burdens are to be paid by those causing the problem applies to noise policy as well. Eliminating problem areas and an unforeseen growth in traffic also requires substantial investments from the national government.

Transnational pollution

Acid rain and nitrogen deposition in the Netherlands originate in other countries in forty and thirty per cent of the cases, respectively. The contribution from foreign countries to ozone and particulate matter is even greater. In other words, the environmental quality in the individual countries of Europe not only depends on emissions in one's own country, but also on those in other countries. Consequently, the Netherlands pursues a twin-track policy: nationally, emissions are to be minimised as much as possible; internationally other countries, particularly neighbouring countries, are encouraged to implement sweeping regulations. Under the Gothenburg Protocol, 31 countries including all EU member states concluded agreements on emission ceilings for 2010. Most EU countries have promised to reduce their emissions rather more than 'Gothenburg' requires, in order to be able to meet international agreements even if developments are disappointing. Higher targets are also in keeping with the leading role that Netherlands hopes to play together with several other European countries. Greater reductions (particularly of ammonia) also offer extra protection for Dutch nature areas.

The magnitude of health risks posed by current air pollution is such that achieving the air quality targets set for 2010 will mean substantial health gains.

Some comments on the primary pollutants:

- Nitrogen oxides (NO_x): the sector is to begin trading NO_x emission credits in 2003. This should result in a cost-effective approach to these emissions.

- Sulphur dioxide (SO₂): the sulphur content of fuels for road transport and inland shipping will be reduced. Refineries, industry and the energy sector must have reduced sulphur dioxide emissions to 30 kilotonnes by 2010. Tackling the problem caused by moored ocean-going vessels can lead to further reductions.
- Ammonia (NH₃): ammonia reduction is based on a combination of generic policy and a more area-based policy. Nitrogen surplus and acid deposition in nature areas will be reduced even more if livestock farming no longer contributes ammonia emissions in zones around nature areas: if ammonia emissions resulting from livestock farming in a zone of roughly 500 metres around nature areas are relocated elsewhere, this will reduce the acid and nitrogen surplus by an average of thirty to forty per cent by the year 2010. Protection of nature areas can also be substantially increased through area-based policy.

Funding

Under certain circumstances, in situations where the minimum standards for the living environment are exceeded, other authorities can now already receive a subsidy to tackle specific trouble spots. The possibility of pooling these funds in an integrated scheme for addressing environmental problems is being studied. Some activities (e.g. transport, business activities) result in additional costs to maintain the quality of the living environment. In principle, those costs must be incorporated into the prices of the activities. The government will expand its subsidies of urban renewal to attempt to improve the environmental quality in this respect too. An ICES investment claim has been submitted for this policy, a sum of NLG 5,200 million (€ 2,360 million). The costs of addressing noise problems in the national infrastructure are estimated at NLG 4,800 million (€ 2,180 million). The innovation programme for new and



more effective noise measures will cost an estimated NLG 345 million (€ 157 million). Both sums are claims within the ICES budget. This issue is part of a broader decision on the ICES budget which will be taken in the next government term (2002-6).



Funding

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Various measures for the transitions and policy innovations referred to are described in chapters 5 to 11. These will lead to social costs and costs to be borne by the government. The funding of these policies has not yet been guaranteed. The funding will be agreed either as part of a broader decision to be taken as part of the programme for the next term of government (2002-6) or as part of the ICES budget also to be decided upon by the next government. In the light of this, the ICES investment incentive procedure is important as a source of funding over and above the traditional budgets, in which funding possibilities may be included in the programme of the next government (such as reallocation of existing resources). At the moment the requirements of the economic infrastructure - in the broadest sense - are being reviewed in this ICES context. It is clear that priorities must be set. The current government will report to parliament, before the end of 2001, about the financial relationship between the economic restructuring budget (ICES) and the major policy documents such as the National Traffic and Transport Plan, the Fifth National Policy Document on Spatial Planning and the NEPP 4. The consequences of insufficient funding for the proposals in this policy document will be less drastic the more quickly and completely environmental costs can be internalised. If the possibilities for this are limited, the phased implementation of the proposed set of instruments for this policy document will be modified.

In conclusion

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Environmental policy makes sense. This policy document is the beginning of a new policy cycle and marks the end of a period of about ten years in which the government published several environmental plans. Many pollution problems were alleviated during the decade, but some issues turned out to be more difficult to tackle than expected. Intensifying the existing approach would not have been the answer. More fundamental measures are needed to address the most serious problems, closer to the heart of the economic process, without undermining the basis of the economy.

As indicated, this policy document starts a new policy cycle that sets out on a course towards sustainability spanning several decades. This is the only way to deal with problems in the areas of energy and climate, biodiversity, raw materials, agriculture and food supply.

This NEPP targets three types of problems:

- long-standing, persistent problems that can only be solved by completely internalising environmental externalities into prices;
- well-known environmental problems appearing in new guises, such as external safety and the health risks of chemical and biological pollution and radiation;
- new problems resulting from technological innovations that solve existing problems but that often create unexpected new problems. These pertain not only to actual phenomena (e.g. increases in scale, biotechnology, atmospheric pollution, etc.) but also the ever more complex interaction of these phenomena. The global interaction of these matters renders society more vulnerable and the nature of disruptions more difficult to manage. This requires vigilance on a larger scale and over a longer term than we have been accustomed to so far, and a firmer establishment of the precaution principle.



The policy choices and solutions provided in this document are the guidelines for the years to come. Transitions require vision, courage and perseverance from everyone involved. The question is not whether it is possible, but how it is possible. An on-going re-evaluation will occur as new circumstances present themselves. Accordingly, the approach must not be rigid, but flexible, not dogmatic, but creative, while learning to deal with uncertainties.

The Netherlands cannot achieve these developments on its own. The fact that our country has the role of a catalyst, even in the new Europe with 32 member states, remains as evident as ever. Strength of mind and credibility remain the catalysts of change. In this context, international agreements are a necessity, even in areas that have previously not been addressed. This demands enhancing the international capacity to conclude and maintain these agreements. This requires an internationally accepted standardisation and valuation system regarding the relationship between people and the living environment, a system focused on sustainability. A recurring theme of this policy document is that this sustainability will benefit future generations in all countries, including those who have not yet benefited from global economic developments.

This policy document is not opposed to belief in social progress, but rather aims for true progress, which is not based on transferring the side effects to weaker parties or future generations.

This NEPP 4 aims to enhance the permanent process of improvement by developing comprehensive solutions for here and elsewhere and for the present and in the future. When there is a will to do so, these solutions can be achieved together.



The original policy document was drawn up jointly by the following ministries:

Housing, Spatial Planning and the Environment

Interior

Economic Affairs

Agriculture, Nature Management and Fisheries

Transport, Public Works and Water Management

Foreign Affairs

Finance

Education, Culture and Science

Health, Welfare and Sport

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The text of this publication still has to be ratified by both the Lower and Upper Houses of Parliament.**