

Foreword

Together with the Netherlands Institute for Social Research, the Netherlands Environmental Assessment Agency and the Netherlands Bureau for Economic Policy Analysis, Statistics Netherlands has developed the Sustainability Monitor for the Netherlands. This monitor shows where the Netherlands is doing well from the point of view of sustainability, and where there is cause for concern. The monitor is a contribution to the current debate among politicians, policymakers and scientists about the long-term development of Dutch society.

This summary presents the main results of the Sustainability Monitor for the Netherlands 2011. The statistics and visualisations can also be found on Statistics Netherlands' website (www.cbs.nl) and are updated annually.

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The Netherlands: sustainable?

The present quality of life in the Netherlands is high. However, there are concerns that some aspects of this quality of life cannot be maintained. The main concerns about sustainable development relate to the resources that will be available to future generations and to problems of a global nature:

1. *Environment and nature:* Climate change presents a global threat to the environment and ecosystems. Biodiversity is declining throughout the world, including the Netherlands. Noteworthy in this respect is that the Netherlands uses a relatively large share of the natural resources elsewhere in the world, such as agricultural land.
2. *Financial sustainability:* The level of Dutch government debt and the growing costs of health care and social security are causes for concern. It is no longer certain whether future generations will be able to count on the same level of health care services, pensions and other social benefits as the current generation.
3. *Knowledge level:* Knowledge is the key ingredient for continuing prosperity. There are reasons for concern on this point, too. The share of R&D in Dutch GDP is falling and the education level of the younger generations is mediocre in comparison with other European countries. In addition, the number of early school-leavers in the Netherlands is relatively large and the results achieved by Dutch pupils in internationally comparable tests are declining, both in primary and secondary education.
4. *Disadvantaged position of non-westerners:* Many non-western ethnic minorities in the Netherlands face numerous disadvantages. For example, their unemployment rates are relatively high and income differences with native Dutch citizens are widening.

Many countries, including the Netherlands, have made sustainable development a policy goal: they seek to build a society in which the current quality of life can be maintained, and preferably improved, without damaging the development opportunities of future generations or of people elsewhere in the world. In this Monitor we draw on a large number of indicators to outline how the situation in the Netherlands is developing with respect to this goal. We conclude that the four groups of problems listed above currently present the greatest challenges. These are not isolated problems. To be able to tackle them we need to have some understanding of how they are interconnected and of the relevant social trends. In pursuing policies for addressing these problems, certain choices will have to be made, while taking into account the following points.

Greening the economy

One of the major global challenges lies in reducing the contradictions between economy and ecology and reversing negative environmental trends in climate, biodiversity and resource use. In addition, with the emergence of new economies such as China and India competition for resources is intensifying, which can lead to growing scarcity and higher prices.

Greening the economy is about improving prosperity without sacrificing the quality of the environment; in other words, economic growth within strict environmental and ecological limits. Greening the economy is an important means to achieve sustainable development by making radical improvements in the efficiency of the use of energy and raw materials. Generating more added value and using less energy and fewer raw materials presents a major

challenge. Key instruments for achieving this are innovation and natural resource pricing. Although greening poses a challenge to everyone, it particularly affects sectors that make major demands on the physical environment, such as agriculture, industry, energy supply, construction and transport. Greening the economy will require substantial investment in the coming years. Apart from reducing pressures on the environment and nature, this can also contribute to economic growth.

Public or private funding?

A second major challenge is the sustainability and funding of public and semi-public services. In the Netherlands there are doubts about the long-term sustainability of these public and semi-public services, partly because of the rising costs of pensions and health care. Moreover, the recession has driven up Dutch government debt, putting the government under greater pressure to reduce expenditure by setting social priorities and making choices. A good example is the raising of the retirement age.

In other areas too, such as research and education, investment is needed to give future generations the possibility of maintaining their high standard of living. The current economic and budgetary situation makes the question of how to make the necessary investments particularly acute. To what extent is the government responsible for providing these funds? And to what degree is it possible or desirable to pass these costs on to the public and to the corporate sector?

Consequences of the shrinking labour force

A third major theme is 'demographic decline'. Over the next few decades the population will age and the size of the labour force is expected to decline. Between 2010 and 2040 the number of over-65s relative to the potential working population will increase from a ratio of 1:4 to a ratio of 1:2 in the Netherlands. The decline in the size of the potential labour force will mean a reduced labour supply. The shortage of labour can be partly compensated by higher participation in the labour market; for example, people who now work part-time could work full-time. Increasing the retirement age can also be effective in increasing the potential labour force. The extent to which the smaller labour force will lead to an actual shortage on the labour market will depend partly on the dynamics of the economy, but also on the type of workers required in future? It is not just numbers of working people that matter, but also the quality of the labour pool. The quality of education is crucial in delivering a highly skilled labour force that meets the needs of employers.

Besides the shrinking labour force, in some areas of the Netherlands, particularly in the peripheral regions, the population and the number of households will decrease over the next 30 years. Because a shrinking population has consequences for local and regional housing markets, services and amenities, economic activity and labour markets, this will make alterations to the built environment increasingly necessary. The prospect of regional population decrease is attracting growing public interest. Factoring the consequences of this decrease into the realignment of spatial policy will be a major challenge in the coming years.

Prevention and freedom of choice

Solutions are needed for the trends in and the threats to sustainable development presented in this Monitor. Prevention can be an important part of such a response. For example, health care costs can be kept under control if people remain healthy for longer: if they eat more healthily, smoke less and take more exercise. People can also reduce the damaging effects of consumption on biodiversity and the climate by changing their consumption patterns.

The government could set rules to force people to adopt certain forms of behaviour. However, regulations that reduce freedom of choice are seldom popular and often meet with considerable resistance. Curiously enough, restrictions on freedom of choice are widely accepted in some aspects of life, but resisted in others. Compulsory health insurance, pension contributions (compulsory for employees) and compulsory education, for example, are widely accepted. The government will have to decide how far it should intervene to change our unhealthy lifestyles and consumption patterns. This is a tricky dilemma: involuntary prevention has cost advantages and meets the needs of sustainable development, but at the expense of individual freedom of choice.

Distribution and inequality

As well as maintaining present quality of life, sustainable development also concerns the distribution of wealth, both between countries and within the present generation, including its distribution within the Netherlands. In many areas of life, people in the Netherlands with a non-western foreign background are at a disadvantage. Unemployment among them is proportionally high, their trust in others is low and their incomes are lower than those of the native Dutch population. Education is crucial in reducing these disadvantages. The level of inequality between men and women in the Netherlands is low, and is reflected mainly in lower incomes of women.

Summary

1 Introduction: what is sustainable development?

Sustainable development concerns not only the environment and life today. In this *Sustainability Monitor of the Netherlands*, sustainable development is examined from the perspective of the quality of life *here and now* in relation to the quality of life *later and elsewhere*. This approach is consistent with the definition formulated by the Brundtland Commission in its report *Our Common Future*: 'Sustainable development is development which meets present needs without compromising the ability of future generations to achieve their own needs and aspirations.'

Societies have a number of resources available to make sustainable development possible. First, there are natural resources and the physical environment. Raw materials meet many of our requirements, but the available stocks are not endless. Neither is the absorptive capacity of the atmosphere. Moreover, sustainable development also needs capital goods, technology and infrastructure, as well as knowledge, social trust and a healthy population.

The methodological approach taken in the Sustainability Monitor for the Netherlands

The Sustainability Monitor for the Netherlands brings together all the elements mentioned above in three dashboards of indicators which give an impression of:

- (1) the quality of life in the Netherlands here and now;
- (2) the opportunities for future generations in the Netherlands to achieve their welfare goals;
- (3) the impacts that the pursuit of well-being and material welfare in the Netherlands has on the rest of the world.

We describe the present quality of life using a set of criteria for individual well-being and material welfare (such as health, housing, leisure time, education and financial security) and environmental and a set of living conditions criteria (such as safety, natural environment, air quality, social participation and trust). When describing the quality of life we make a distinction between objective factors (what is the situation in a specific area) and subjective factors (how satisfied are people with their situation). An overview of all the criteria and indicators is given in Chapter 2.

We discuss the opportunities available to future generations from the perspective of the available resources, which can be described in terms of capital. We distinguish between four types of capital:

- natural capital, such as land, climate and energy;
- human capital, such as labour, health and education;
- social capital, such as social participation and trust;
- economic capital, such as physical capital, knowledge and debt.

For each of the aspects listed above the Dutch situation is compared with the situation in Europe: how does the Netherlands perform with respect to its European neighbours? In separate sections we also briefly discuss distributive aspects in the Netherlands. In addition, we look at the global impact of the Netherlands by examining trade, development aid and the use of resources.

Sustainable development is surrounded by uncertainties

A sustainable society meets the needs of its citizens. However, it is not easy to describe precisely what a sustainable society and sustainable development are. For a number of reasons, determining the progress made by a society in moving towards sustainability involves a certain amount of 'groping in the dark'.

First, the degree to which the needs of the present generation are being met – without compromising the ability of future generations to satisfy their own needs and aspirations – is hard to determine. After all, these needs and aspirations are considerable. Some even say people can never be fully satisfied.

Second – and this is closely related to the first point – future developments are shrouded in uncertainty. For instance, the degree to which the needs and aspirations of future generations can be satisfied depends critically on the size of the world population and the state of technology. Any pronouncements on these matters are highly speculative.

Third, ideas and preferences regarding future trends differ, giving rise to many different possible worlds that can be described as 'sustainable'.

Lastly, it is not easy to indicate whether the trends we identify in this Monitor will move in the right direction at the required rate. This is because to do so we need to have a clear idea of the social or political goals, preferably based on critical norms. In practice, though, it is difficult to establish with any accuracy what these critical norms should be. This requires answers to questions such as how much inequality a society can take before it becomes disrupted and how many species must be lost before an ecosystem collapses. Answers to these questions are subject to a high degree of uncertainty.

Structure of the report

In the following sections we first paint a general picture of the level of sustainable development in the Netherlands. We do this using the dashboards on quality of life, natural resources and the impact of the Netherlands on the rest of the world. We then examine three important topics in sustainable development. These topics are more exploratory in nature and concern:

1. the relation between international trade, economic growth and the environment,
2. a low-carbon society, and
3. global coordination versus global competition.

2 The current situation

The present quality of life in the Netherlands is high by European standards and in general gives no cause for concern. This applies to both the objective circumstances and to how satisfied people feel with their lives.

Figure 1. Summary table of the level of sustainable development in the Netherlands

Trend in NL	Quality of life	Position of NL in EU
	Well-being and material welfare	
	Personal characteristics	
	Environmental characteristics	
Resources		
	Natural capital	
	Human capital	
	Social capital	
	Economic capital	
Netherlands in the world		
	Environment and natural resources	
	Trade and aid	

- Trend with negative effect on sustainability, or low international ranking.
- Trend with neutral or unknown effect on sustainability, or average international ranking.
- Trend with positive effect on sustainability, or high international ranking.
- No data available for comparison with other EU countries.

Each thematic circle shows the combined results of several indicators. The numbers of indicators for each theme are not the same. The first column summarises the trend in the Netherlands since 2000. The third column shows how the Netherlands performs compared with the other 26 EU countries. Further explanation of the results shown in this table and descriptions of all the indicators can be found in chapters 2 and 3.

However, there are indications that the way in which our wellbeing and material welfare is generated is making it more difficult for subsequent generations to create their own prosperity. Half the indicators for natural capital and a quarter of those for human capital are on red (see Figure 1). The stocks of a considerable number of resources are no longer rising and some are actually falling. Moreover, compared with other EU countries, the Netherlands uses a relatively large proportion of the natural resources elsewhere in the world, especially in developing countries. This share has increased during the past decade, for example due to higher imports of biomass and raw materials. Meeting the material needs and aspirations of the Dutch population therefore has negative impacts elsewhere in the world, including biodiversity loss and greenhouse gas emissions. On the other hand, the earnings from the goods exported to the Netherlands can contribute to rising prosperity in the exporting countries. The Netherlands also spends a relatively large amount of money on development aid.

Quality of life

The level of *wellbeing* in the Netherlands, as a measure of how satisfied people feel with their lives, is high by international standards and has been fairly constant over the last ten years. In many areas the Dutch consider the quality of their lives to be higher than expected on the basis of objective criteria.

The quality of *housing and the residential environment* in the Netherlands is good compared with the rest of the European Union. The number of available homes rose slightly during the last decade, although the waiting lists for social rented accommodation are a serious problem, particularly in the major cities. The more general stagnation in the housing market, which mainly affects starters, semi-starters and people on low incomes, is partly a result of the mortgage interest tax relief, rent allowance and rent control, which hampers upward movement in the housing market.

The *mobility* of the Dutch is still increasing, but the rate of increase is easing off. Commuter traffic in particular has increased during the past ten years. Of all Europeans, the Dutch spend the most time travelling to work and back, and travel-to-work times are increasing year on year. The traffic accident death toll has been declining since the mid 1970s and has fallen even further in the past ten years. Road deaths in the Netherlands are the second lowest in Europe. Air pollution from road traffic has also decreased in the past ten years. At the same time, about half of the Dutch population are affected by traffic noise and/or industrial noise pollution.

The level of *public safety* in the Netherlands has improved, measured both in objective and subjective terms. Nevertheless, the number of violent crimes has risen in recent years, particularly cases of assault and threats of violence. The fear of terrorist attack in the Netherlands is around the European average. An alarming trend is the relatively high number of minors involved in criminal activity, not only compared with the past but also with other member states of the European Union.

Natural capital

Of the four types of capital, the conservation of natural capital in the Netherlands is in the worst situation. Population and economic growth are still driving up the demand for land for housing and work, the main pressure on *biodiversity* and natural habitats in the Netherlands. Nonetheless, the rate of biodiversity loss in the Netherlands has been reduced in recent years, particularly as a result of the creation of new habitat and improvements in environmental quality.

The negative trend is not limited to biodiversity, but is also found in the fields of *energy* and *climate*. For example, at the current rate of extraction, the Dutch natural gas reserves will be exhausted in about twenty years. In recent years the share of sustainable energy in total energy consumption in the Netherlands has been growing, but it remains low compared with other European countries. Although per capita emissions of greenhouse gases in the Netherlands have fallen, they are higher than in other European countries, putting the Netherlands low down in the EU emissions league table.

However, the trend in *local environmental quality* is positive. During the past decade emissions to the air, water and soil in the Netherlands have fallen sharply, leading to improvements in environmental quality. Air quality in particular has improved. In contrast, the improvements made in the state of surface water bodies in the Netherlands have stalled since 2000. Despite the improvements that have been made, when judged by European standards, local environmental quality in the Netherlands must still be described as 'not good'. That pressures on the local environment in the Netherlands are high compared with other EU countries can be explained largely by the fact that the Netherlands is a densely populated country with relatively high densities of livestock, industry and road vehicles.

Human capital

Although the trends in human capital since 2000 have been largely positive, there are reasons for serious concern on a number of fronts. The Dutch are living longer and are remaining *healthy* for longer. Still health care costs have risen sharply and will continue to rise as a consequence of the ageing of the population. To keep health care costs under control it is important that people remain healthy for as long as possible, underlining the importance of healthy lifestyles. The increasing tendency towards obesity poses a serious problem in this respect.

The level of *education* of the population is continuing to rise, but the education performance of the Netherlands is only on a par with the European median. The main problems are at the bottom of the educational ladder, due to the relatively high number of early school-leavers. Although the scale of the problem has reduced somewhat in recent years, numbers are still very high. Moreover, the results achieved by Dutch pupils in internationally comparable tests show a downward trend, both in primary and secondary education.

Participation in the *labour* market in the Netherlands is relatively high (and the unemployment rate is low), but the number of hours worked per person is low by European standards. The ageing of the population will further depress growth of the potential working population. The limited growth in the size of the labour force can be compensated for by increasing productivity. The number of hours worked in the Netherlands is relatively low. This is mainly due to reduced working hours and the high proportion of part-time jobs, which is higher than in any other country and gives the average Dutch citizen more free time.

Social capital

The Netherlands leads Europe in the share of people who do voluntary work. The *trust* people have in others is also relatively high in the Netherlands, as is the trust people have in social and political institutions, such as the police and Parliament. This situation has not changed in recent years, although the level of trust in institutions now fluctuates more widely than before.

Despite this high level of social trust, there are regular reports of *tensions* between social groups, especially between communities with different ethnic backgrounds. However, these tensions are felt by fewer people: the percentage of the Dutch population that think that the

country is a better place to live because people from other countries have come to live here has risen. Not everything within the field of social capital is positive: almost 8 per cent of the Dutch people feel discriminated against. This percentage is just above the European average.

Economic capital

The economic capital in the Netherlands has increased since 2000. This applies both to the stock of physical capital goods (such as machines) and to the amount of knowledge. The size of the Netherlands' foreign assets also rose in the years 2008 to 2009, putting the Netherlands in a healthy position in this respect compared with other European countries.

The financial crisis has considerably weakened the state of Dutch public finances, but the Netherlands is not among the worst affected countries. What the crisis shows is that the robustness of the financial institutions cannot be taken for granted.

By European standards the accumulated pension capital in the Netherlands is high. Nevertheless, at current interest rates these savings will be insufficient to meet payment obligations. Healthcare costs have also risen significantly in recent years and will probably rise further in future because of the ageing of the population and the rising life expectancy. At the present tax rates it will probably not be possible to maintain current levels of social security and public services.

Inequality

The definition of sustainable development contains a distribution issue: how are resources, wealth and well-being divided among countries, generations and population groups? Global, intergenerational and national distribution are therefore all relevant. Does everyone have the same opportunities and possibilities, and does everyone benefit from the opportunities and possibilities open to them?

Based on demographic criteria, social inequality in the Netherlands consists largely of the disadvantages experienced by ethnic minority groups. In all the measured aspects of prosperity and the opportunities to improve prosperity levels in the future, people with a non-western foreign background face disadvantages compared with the native Dutch population. Overall, these differences are not increasing, but neither are they decreasing. However, the gap in income levels between native Dutch and people with a non-western foreign background is widening.

There are differences between the gross hourly wages of men and women: women's wages are still lower than those of men. Women also more often do not feel safe than men. In other respects, there is little social inequality between men and women in the Netherlands.

Education is of prime importance in reducing inequalities and increasing actual and perceived prosperity. The higher educated score better on almost all aspects of prosperity than the less educated.

3 Three exploratory topics

The above description of the current situation gives a general impression of how the Netherlands stands with respect to sustainable development. In this section we explore three topics to shed light on how some sustainability problems might be solved. The first topic is the relation between economic growth, international trade and environmental problems. The second explores the possibilities for moving towards a low-carbon society in 2050. The last topic is about alternative strategies for solving global environmental problems.

3.1 International trade, economic growth and sustainability

The Netherlands is a major importer and exporter of goods. The production of goods in the exporting countries, especially in developing countries, causes environmental damage, biodiversity loss and depletion of natural resources. Alongside the positive income effects in the exporting countries, Dutch imports contribute to *unsustainable* development abroad, mainly in developing countries from which large quantities of biomass, fossil energy and other raw materials are imported.

To a certain extent, these negative effects associated with imported goods are unavoidable. However, two relevant feedback mechanisms relieve the negative effects somewhat and, in the longer term, reduce them, in some cases even cancelling them out. The first is referred to in the literature as the 'environmental Kuznets curve'. The second relates to fertility.

In general, production for export helps to increase living standards in the exporting countries. As living standards in these countries rise, the demand for a clean environment grows. In the domestic setting, this is reflected in investments in better sanitary facilities, cleaner methods of preparing and cooking food, etc. In the local and national contexts, this demand is reflected in pressures on the authorities to impose stricter environmental standards on companies and products, to deploy cleaner technologies and to resist deforestation.

However, this 'environmental Kuznets curve', which can lead to a reduction in environmental damage and pressures on the environment, does *not* apply to all forms of environmental damage. For global common goods in particular, such as the atmosphere, the stocks of natural resources and the biological wealth of the oceans and tropical forests, the picture is generally less favourable. Although current policies have been relatively successful in decoupling climate change and resources scarcity from economic growth, the situation is still worsening in absolute terms.

Rising living standards are usually accompanied by a 'modernisation' of society, reflected in among other things progressive urbanisation and better education for girls, which set a second feedback mechanism in motion: a rapid fall in fertility. Whereas about 50 years ago, global

fertility fluctuated around an average of 5 births per woman, this figure has now been halved to just over 2.5. In many countries fertility levels have already fallen below the replacement level of about 2 children per woman. Moreover, in almost all countries where fertility rates are higher than the replacement level, the decrease in fertility has not yet come to an end. In the long term this process is expected to lead to a fall in the global population (at the end of this century or the beginning of the next century), which, other things being equal, will gradually relieve pressure on the environment.

These two feedback mechanisms are by no means universal laws. The rate at which pressure on the physical environment changes can therefore be influenced to a certain extent by national and international policies.

3.2 A low-carbon society

Combatting global climate change requires an international approach. The EU and the G8, among others, have set themselves the task of limiting the average global temperature rise to no more than 2 degrees Celsius. To achieve this, global greenhouse gas emissions must be halved by 2050. Assuming equal per capita emission rights across the world, this means that emissions in the EU and other industrialised countries will have to be cut by 80 to 95 per cent by 2050. By that time the Netherlands will have to be a low-carbon society, with minimal greenhouse gas emissions. Adjustments in the energy sector alone will not be enough to bring this about; significant changes will also be needed in the industrial, agricultural and transport sectors and in the built environment.

Crucial in achieving this will be efficiency increases and switching to a low-carbon energy system. Such a low-carbon energy system could consist of a combination of nuclear power, clean fossil energy – in which the CO₂ released is captured and stored – and renewable energy sources such as solar and wind power. A coordinated package of measures will be needed to establish such an energy system, ranging from land-based wind energy to nuclear power.

The path towards a low-carbon society will have to overcome several obstacles. These obstacles are not primarily technological, but are more economic, institutional and behavioural in nature. Examples of these obstacles are the inadequate reflection of the external costs of pollution in prices, the inert and complex nature of the energy system and the difficulty of getting people to change their fixed daily routines.

Overcoming these and other obstacles and establishing a low-carbon society will require a combination of market-based and regulatory instruments. Effective market-based instruments include taking account of environmental damage in pricing, encouraging investment in green technologies and abolishing damaging subsidies. Besides this, regulation will be needed, especially if the response to price signals is weak or if it proves necessary to prohibit damaging activities. Furthermore, experience in other policy areas, such as waste management and air pollution, show that where reductions of more than 80 percent have been achieved in the Netherlands, regulations have played a major part in this success.

If the Dutch government decides to lead the way in creating a low-carbon society, this can open up opportunities for companies in the Netherlands to participate in making the economy more sustainable. The market for renewable energy technology is expected to grow rapidly in the coming decades and Dutch companies can profit from this growth market. Opportunities for Dutch companies lie in the biomass chain and some parts of the offshore wind energy industry. If the Netherlands wants to become a major supplier of offshore wind energy, the government will have to develop a stable incentives policy, reserve areas in the North Sea in the short term, and reserve capacity in ports for the assembly of equipment. Besides that, companies can benefit from having a domestic market in which they can gain valuable experience. An issue that needs to be addressed when stimulating the development of renewable energy is finding the best combination of rolling out existing technology (to reduce unit costs) and supporting research and development of new technologies.

A low-carbon society implies further electrification, which in turn requires considerable investments in the electricity network. The question is how the electricity network should be modified. Should it become an international grid that links national networks, or a smart grid linking together decentralised energy sources? Before answering this question a robust option would appear to be to invest in a northwest European electricity distribution system, including an 'offshore power hub' and a cable to the shore. This would allow the different countries to gain experience with linking their networks and building new institutional arrangements, and to reflect jointly on the fuel mix.

Energy from renewable biomass and carbon capture and storage (CCS) can both contribute to building a low-carbon society. However, renewable biomass and CCS have limited availability, which makes it important to use them as efficiently as possible.

In the coming years certain strategic choices will have to be made about the steps to be taken towards a low-carbon society in the Netherlands. In the final instance, the choice of the route and the policy instruments to be used will primarily be a political one. The question of *how* best to shape policy will need to be supported by research more than it has been in the past.

3.3 Solving global environment-related problems: through competition or coordination?

Many persistent environment-related problems that still require solutions are global in scope, such as climate change, biodiversity impacts and scarcity of natural resources. Opinions on how best to solve these problems differ widely. One of the questions that needs to be answered is how coordination or competition between countries can help to solve global problems. Is it logical and practical to want to agree on a common strategy with all countries? Or does competing with other countries offer better prospects of success? Other motives, like acquiring a more competitive position with more economic growth and reducing dependence on imports, would seem to be powerful arguments in favour of this second option.

For this Monitor we carried out two case studies to investigate these questions. We chose to investigate two different global environment-related problems that are attracting considerable attention at present: climate change and scarcity of natural resources. What is the current mix of coordination and competition in approaches to tackling these two problems? Which factors determine the choice between these two steering mechanisms? Is it possible to determine an ideal mix for tackling each of these problems for use in Europe and the Netherlands?

Because the climate is a global collective good, attempts at solving the problem of climate change have so far largely been based on global coordination through the United Nations international climate negotiations (UNFCCC). However, conflicts of interest between countries and different visions on the types of solutions to be pursued have frustrated progress in these negotiations. Would competition for solutions to climate change not be a better approach? The rapid growth of renewable energy seems to point in this direction. Individual countries would then each decide whether stimulating the development of renewable energy is of economic value; they would compete with each other on the application of this 'green technology'. But because renewable energy still makes only a limited contribution to total global energy supply, it is questionable how much can be achieved through competition. Although competition for solutions to climate change does seem to offer opportunities for tackling the climate problem, for the time being it is clearly not the only way.

The situation regarding the global problem of scarcity of natural resources is very different from that of climate change. Most natural resources are traditionally in private ownership; they can be allotted to individual countries and are traded on the markets. Parties have therefore competed for these resources for a long time, but does this also involve competition for environmental solutions? The current concern about scarcity of natural resources focuses mainly on the distribution and access to resources, as well as their affordability, while global depletion of raw materials stocks has been pushed somewhat into the background. This does not necessarily mean that environmental solutions no longer have a chance. However, the type of strategy pursued is important in solving the current scarcity. If the main strategy is to save resources and not to secure access to scarce raw materials, competition can deliver environmental benefits. But the EU's Resource Efficiency Strategy stands opposed to the practice of 'land grabbing' in Africa by Asian countries with a view to securing access to food supplies. Some form of international coordination and agreement could help to keep the present competition for resources within environmental limits. Global certification of international raw materials supply chains is just one example.

Comparison of the balance between competition and coordination in the two case studies and how this is shifting reveals a number of advantages and disadvantages to both steering models. Global coordination paves the way towards agreements on the limits to global environmental systems, but coming to such agreements is made difficult by the major underlying conflicts of interest between nations. Such agreements are not needed in the competition model, in which each country can try to combine environment and market interests in its own way. A danger with the latter approach is that attempts made by a few well-meaning countries will not necessarily amount to a sufficiently coherent package to help solve global environmental problems.

The question then is whether it is possible to find an 'ideal mix' of both ingredients for the Netherlands and for Europe. Specific strengths, such as a traditional concern for the environment and the quality of the human environment at the national and European level, the tendency to promote universal values and the willingness to look for multilateral solutions through the use

of 'soft power', may prove useful when trying to identify the right mix. By building on the EU Emissions Trading System (ETS), a policy for promoting the use of renewable energy sources and further developing the Resource Efficiency approach to raw materials, the Netherlands and Europe can play a stronger role in the competitive approach in future. On the other hand, Europe and the Netherlands can strengthen their role in the international coordination of approaches to solving global environmental problems by focusing more on bringing parties together in climate change negotiations and initiating cooperation on the environmental conditionality of competition for raw materials.

Conclusion

The questions of whether the Netherlands will move towards sustainable development and how the country can become more sustainable are not easy to answer. The sustainable development of society is surrounded by much uncertainty, for example the uncertainties about the needs of future generations, trends in population size and technological developments. There are also differences in the scale of sustainability issues. For example, in the domestic sphere the problems include things like air quality in the home, noise nuisance and street crime. At national level the issues include social cohesion in society, the national debt and the labour participation rate. Global issues include climate change and resource use. Various different strategies are conceivable for each level and each issue. Moreover, not all issues now considered problematic will necessarily remain problematic in future.

Some sustainability issues can be solved by changes in society itself. In societies where the population enjoys a certain level of income, local and environmental problems are often reduced (in relative terms), partly through decoupling mechanisms. Demographic trends can also have a moderating effect. For example, populations grow more slowly as their development level rises. Nevertheless, a number of problems do require deliberate action: climate change, biodiversity loss and the impending scarcity of natural resources. Many technologies are already available, for example for making more efficient use of energy and raw materials and for creating a low-carbon economy.

Before these technological options are explored, we need to be clear about what we want to aim for. A key question is whether it is desirable for the Netherlands to adopt a leading international position. From the perspective of the economy and innovation, it may benefit the Netherlands to play a pioneering role, for example in the field of renewable energy supplies. A disadvantage is that the costs of playing a leading role are relatively high, for example because new technologies are subject to initial difficulties and organisations have to gain experience with the new technologies and materials.

For a long time it was thought that the market could not solve problems like climate change and biodiversity loss, and that institutional action was necessary to find appropriate solutions; in other words, that governments should set global ground rules, such as cutting greenhouse gas emissions. While institutional action is still important, it would appear sensible to supplement this by harnessing the power of the market to increase innovative capacity and by exploiting the energy available in society. Innovation in the field of clean technology presents the European Union and the Netherlands with opportunities to strengthen their competitive positions.

The opposite has long been thought to be true for the problem of resource depletion and, in essence, everything was left to the market. But the question is whether this in fact requires at least some coordinating action. The impending shortage of raw materials could cause a race to acquire them between different buyers, which could easily degenerate into a 'race to the bottom'. Seeking the right balance between competition and coordination therefore presents a major institutional challenge when tackling global environmental problems in future.

There is no single blueprint for solving sustainability problems that governments can use without question, because an option that has a positive effect in one area often has negative consequences in another. Besides, decisions on which option to take depend not only on understanding the current situation, but also on the consequences of trends that have already been set in motion, such as population decrease. This Monitor aims to shed more light not only on the present quality of life, but also on the possibilities available to future generations to shape the quality of their lives.

