

Assessment and recommendations

The Assessment and recommendations presents the main findings of the OECD Environmental Performance Review of the Netherlands and identifies 29 recommendations to support the country's further progress towards its environmental policy objectives and international commitments. The OECD Working Party on Environmental Performance reviewed and approved the Assessment and recommendations at its meeting on 18 June 2015. Actions taken to implement selected recommendations from the 2003 OECD Environmental Performance Review are summarised in the Annex.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1. Introduction

As a small, densely populated country with a very open economy, the Netherlands felt acute environmental pressures early on. To tackle these pressures, it became a forerunner in environmental policy decades ago and has long been considered a leader in a number of areas. However, more recently, the government recalibrated ambitions for environmental policy objectives to levels set by the European Union, with a view to promoting a level playing field. While the temptation may be to wait and let other countries catch up in areas where it is already doing well, the Netherlands still faces some persistent environmental challenges, and new ones are emerging. Hajer (2011) stressed the scale of the task ahead when he highlighted that resource use and the resulting pressures on the environment need to be scaled back by a factor of five. This equates to operating 80% to 90% more efficiently. The challenge for the Netherlands in the coming years will be to push the frontier of environmental policy even further and in new ways.

Over the period 2000-14, the country experienced modest growth in real gross domestic product (GDP) of 15%, with an annual rate of 1%. From 2000 to 2008, the economy grew steadily before facing a severe drop in 2009 due to the global economic and financial crisis. Economic activity gradually recovered in 2014 and real GDP is expected to increase further in 2015 and 2016. Important structural reforms are underway, namely in the labour market, health care and pension systems. Significant fiscal consolidation has also been achieved and the budget deficit lowered to 2.3% of GDP in 2014 (OECD, 2015, 2014a, 2014b). Living standards in the Netherlands are significantly higher than the OECD average, as measured by real GDP per capita. Both income inequality and relative poverty are low compared to other OECD member countries.

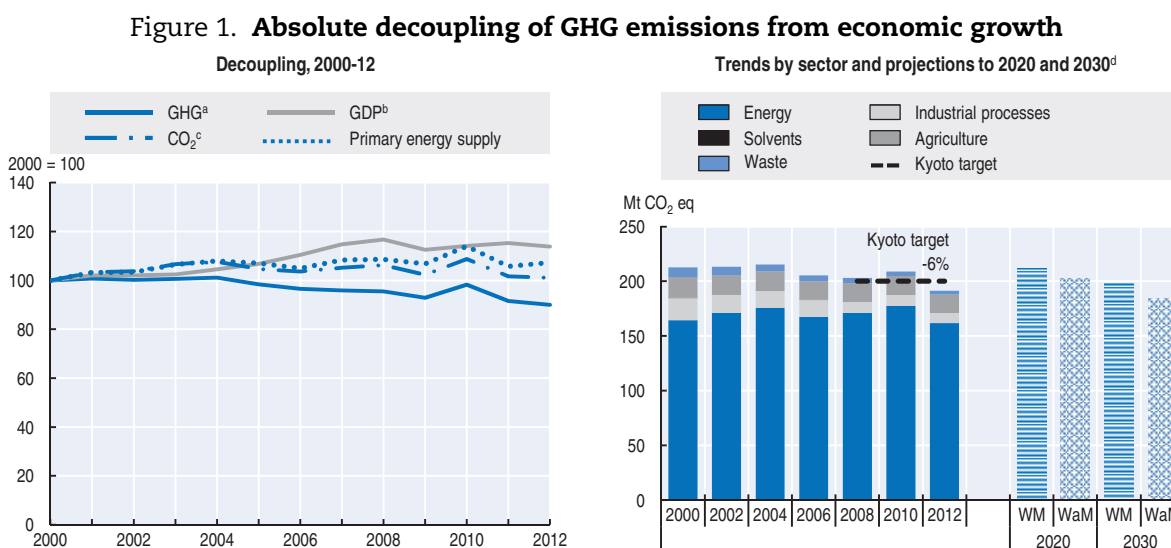
International trade plays a significant role in the economy. With the Port of Rotterdam, the largest in Europe, the country is a major global trading hub. Transport is a key sector and large-scale investments in infrastructure, including road, rail, aviation and maritime transportation, have been made over the years (IEA, 2014). Yet, like in any densely populated country, there is a constant tension between the available transport capacities, the demand for mobility and the associated pressure on the environment.

The Netherlands has one of the largest shares of fossil fuels in its energy mix among OECD member countries, ranking fifth-highest. Natural gas, oil and coal together accounted for more than 90% of total primary energy supplied (TPES). The pursuit of a regional and international approach to energy markets and technology innovation, notably for the deployment of renewable and other clean energy technologies is among the key elements that will shape the future success of Dutch energy and climate policies (IEA, 2014). Renewable energy growth in Europe depends on additional electrical grid infrastructure, with a special focus on interconnection of national networks (OECD, 2014c). Thus, deepening the European Union (EU) internal energy market is important for the achievement of energy and climate goals in the Netherlands.

2. The Netherlands' environmental performance

2.1. Transition to an energy-efficient and low-carbon economy

Since 2000, the Netherlands has achieved absolute decoupling of greenhouse gas (GHG) emissions from economic growth. The carbon intensity of the economy decreased, driven by energy savings, higher imports of electricity and the impact of the economic crisis, as the fall in emissions was larger than the decline in GDP spurred by the crisis (Figure 1). The energy sector, the largest producer of GHG emissions, is the sector with the lowest decrease in emissions over the period 2000-12, reflecting the large share of fossil fuels in the energy mix. GHG emissions from other sectors, including agriculture, industrial processes, solvents and waste decreased significantly. The country's commitments under the Kyoto Protocol have been fulfilled through the acquisition of carbon credits under the Protocol's flexible mechanisms (the Clean Development Mechanism and Joint Implementation) to complement domestic reductions.




a) Excluding emissions/removals from land use, land-use change and forestry.

b) GDP at 2005 prices and purchasing power parities.

c) CO₂ emissions from energy use only; sectoral approach; excludes international marine and aviation bunkers.

d) National projections based on scenarios with existing measures (WM) and with additional measures (WaM).

Source: IEA (2014), IEA CO₂ Emissions from Fuel Combustion Statistics (database); IEA (2014), IEA World Energy Statistics and Balances (database); OECD (2014), OECD Economic Outlook No. 95th, OECD Economic Outlook: Statistics and Projections (database); UNFCCC (2015), GHG Data Interface (database).

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Over the past decade, emissions of all major air pollutants have been decoupled from economic growth. Despite the overall positive trend, average concentrations of fine particles (PM₁₀) in 2010 and 2011 were higher than in previous years, but continued their downward trend thereafter. The number of deaths from outdoor air pollution has declined since 2005, and in 2010 was significantly lower than the OECD average.

2.2. Managing the natural asset base

The Netherlands is the second most densely populated country in the OECD area after Korea. Despite efforts to prevent the expansion of residential areas, increased pressure from urbanisation has resulted in the loss of natural habitats and landscapes. Around 42% of the overall increase in urban and other artificial areas between 2000 and 2006 was taken

by the housing, services and recreation sectors. Around one-third of the country's territory is used for agricultural purposes; meadows and pastures account for about one-fourth, and forests cover only about one-tenth.

The rate of decline of biodiversity has slowed or shown some improvement for certain species. Overall, however, gains have been weak and some species populations are still in decline. The 2013 monitoring results of the EU Habitat Directive reveal that about 95% of habitat types and 75% of species are threatened, a share higher than in many other OECD member countries. The main pressures on biodiversity are increasing urbanisation and transport, as well as industrial, agricultural and fishery activities. The land area under some form of nature protection is slightly lower than the OECD average, covering about one-fifth of the territory.

Situated in the delta of four international rivers, with a quarter of its territory below sea level, the Netherlands faces a number of water-related challenges, especially flood control. The country is classified as medium water-stressed. Non-point sources of pollution from agriculture, atmospheric deposition, traffic and infrastructure and run-off have the largest impact on water quality. Both surface and groundwater quality are improving. Nevertheless, recent analysis shows that the implementation of River Basin Management Plan between 2009 and 2021 will result in only 15% of all water bodies meeting the Water Framework Directive (WFD) ecological targets in 2027 (PBL, 2015a).

2.3. Transition to a resource-efficient economy

The Dutch economy is one of the most resource-efficient among OECD member countries. The country's material productivity (defined as the amount of economic wealth generated per unit of material used) grew by almost 50% between 2000 and 2013. This positive trend was driven by an overall decrease in material consumption and well-functioning waste management strategies. Municipal solid waste (MSW) generation showed significant decoupling, decreasing by 7% between 2000 and 2013 against a slight increase in private final consumption. The country has very high levels of recovery (including reuse, recycling and incineration for energy recovery) across all waste streams.

Despite positive developments in reducing nutrient surpluses, the amount of nitrogen fertiliser and the quantity of pesticides used per square kilometre of agricultural land remain significantly higher than the OECD average. Due to stringent application standards for fertilisation, agricultural nutrient surpluses (nitrogen and phosphorous) showed a continuous downward trend, although from a relatively high level. Nutrient surpluses declined both in absolute tonnes of nutrients and in terms of nutrient surpluses per hectare of agricultural land, resulting in decoupling from agricultural production. In addition, organic farming increased by around 60% between 2000 and 2012 (from 1.6% to 2.6% as a share of total agricultural land).

3. Environmental governance and management

3.1. Environmental policy framework and legislation

Currently, there is a drive to modernise environmental policy, with a strong focus on public health, particularly on new, emerging risks. The government outlined the approach in a Memorandum to the House of Representatives from the State Secretary for the Environment (Government of the Netherlands, 2014). The document recognises the important advances in environmental policy made over the past decades, but signals a new era for environmental

policy given that the major environmental issues being encountered today and that lie ahead are of a different order and require a new approach. The modernisation approach emphasises more active international co-operation and continued efforts to streamline environmental legislation and regulations. It also advocates a new role for the government as a facilitator of “new coalitions” to tap into the energy of civil society and the private sector.

Although the Netherlands was a pioneer in the elaboration of long-term comprehensive visions for environmental policy and planning as early as the 1980s, an effective long-term vision has been lacking over the review period. As a result, short-term actions may not have been the most effective in light of longer-term aims. This may have also contributed to some instability in environmental policy over the period. For example, there have been numerous shifts in climate and energy policy, environmentally related taxation and policy visions for sustainable mobility. At the same time, significant strides were made in some areas, such as water management and external safety policy, following major accidents. In the area of water management, the Delta Programme sets out a comprehensive vision and a long-term policy agenda. Such an approach could provide a good model for developing a long-term strategy for environmental policy.

The Netherlands made impressive progress in streamlining environment legislation, regulations and permitting requirements. A major legislative overhaul is currently taking place to consolidate all of the national environmental legislation under one framework in the Environment and Planning Act. The new act will contain integrated rules on the wide array of activities affecting the environment, including land-use planning, urban and rural development, water management, environmental protection, nature conservation, construction, cultural heritage, mining and the development of major public and private works. This marks an important shift from environmental law dispersed across sectorial legislation (13 acts and parts of 14 other acts) into a consolidated piece of legislation. The act is expected to take effect in 2018. In the process of introducing secondary legislation to support its implementation, it will be important to establish a strong footing for the environment in the context of the recent decentralisation trend providing greater discretion to sub-national authorities in balancing economic, social and environmental considerations.

This consolidation of environmental legislation builds on other important efforts over the review period to streamline environmental regulations, while maintaining the level of environmental protection. For example, the Activities Decree, which came into effect in 2008, drastically reduced the number of installations that require an environmental permit, providing for greater reliance on general binding rules. In addition, “all-in-one” permitting established in 2010 provides a single procedure to apply for environmental permits, replacing requirements for multiple permits. These efforts have significantly reduced the administrative burden, resulting in cost and time savings. In addition, the Netherlands has launched the “Make it Work” initiative to identify opportunities for making the EU environmental *acquis* more coherent and consistent. This initiative should also contribute to better implementation of EU environmental legislation, while maintaining the level of ambition in terms of environmental protection.

Recent OECD analysis (Botta and Koźluk, 2014) of the stringency of select environmental policies (mainly related to the electricity sector) ranks the Netherlands among the most stringent. Yet considering the significant consolidation and streamlining efforts over the period, it would be valuable for the government to assess the impact of these changes, as has been done with the Activities Decree. This would ensure that, collectively, they meet the aim of maintaining (or increasing) the overall level of environmental protection in practice.

3.2. Multi-level environmental governance

In the context of a broader decentralisation trend, the Netherlands decentralised many environmental competencies, including environmental permitting and supervision, spatial planning and nature policy. The reforms sought to provide more discretion and authority to provinces and municipalities to allow for more tailored policies and experimentation with various approaches. However, the decentralisation of tasks has not necessarily been accompanied by additional resources. As a result, sub-national governments might not have the necessary financial, managerial, human and technical capacity to manage their new functions, leading to inconsistent policy implementation. Alarming reports from the Dutch Safety Board (2013, 2012) about high-profile incidents at chemical facilities highlighted major deficiencies in policy implementation and spurred action to address them.

The establishment of the 29 Environmental Services (ODs) in 2014 were an important part of the response to address existing weaknesses. The ODs bring together experience and expertise on environmental licensing, compliance assurance and enforcement. They work at the request of and are funded by the competent authority (municipalities or provinces). The Netherlands faces a challenge to ensure the ODs operate effectively and achieve strong and consistent environmental performance. A large and experienced OD, like the DCMR in Rijnmond, is generally performing well. However, there is uncertainty about the capacity, knowledge and expertise of some of the recently established ODs. Their effectiveness could be improved by putting in place national mandatory quality criteria, strengthening financing arrangements to ensure stable and sufficient funding, and strengthening oversight at national level. Building on the co-operation and mechanisms to share experience already in place for the six ODs responsible for Seveso sites could facilitate the exchange of expertise among all the ODs. The evaluation of the ODs planned in the coming years will be important to assess the quality of their performance and to identify further opportunities for improvement.

3.3. Voluntary agreements

The Netherlands has a long and distinctive tradition of consensus-based decision making, known as the “polder approach”. This approach, carried out through dialogue and negotiation, is used to reach decisions in which more than one level of government is involved. Given this strong tradition, the use of voluntary agreements (e.g. negotiated “covenants” or “gentlemen’s agreements”) is commonplace. This has produced mixed results in achieving environmental aims. Reliance on voluntary agreements may undermine environmental performance in some cases, such as situations where low-hanging fruit have already been harvested and the scope for “win-wins” is limited. Voluntary agreements cannot guarantee that agreed-upon goals will be met, and they also lack effective sanctions. More difficult commitments have to be monitored more closely.

As part of the current drive to modernise environmental policy in the Netherlands, the government is exploring new ways of working with society and business. A prominent example is the “Green Deals” programme launched in 2011. This is an innovative way of getting the best out of the “polder approach” by removing obstacles to implementing environmental efforts by industry (including small and medium-sized enterprises [SMEs]) and agriculture. The deals consist of agreements between the government and various private parties that focus mainly on removing non-financial barriers related to regulations, legislations or licensing. Nearly 200 Green Deals have been concluded so far. The

Netherlands Environmental Assessment Agency (PBL) has been positive about the Green Deals approach, noting there are opportunities to improve and extend the programme (PBL, 2014, 2011a), by, for example, improving project selection.

3.4. Environmental compliance and enforcement

The Netherlands has made effective use of a risk-based approach in the area of enforcement and compliance, putting limited, and shrinking, resources to best use. For example, the Human Environment and Transport Inspectorate (ILT) and the Netherlands' Food and Consumer Product Safety Authority (NVWA) use a risk-based approach to profile potentially non-compliant installations with significant risks. This approach is also applied by the ODs specialised in the enforcement of the Seveso Directive. There is also a robust approach to avoid and deter chemical accidents. There is an increasing use of covenants with companies based on trust, combined with regular oversight and periodic auditing. This new approach should be carefully monitored to ensure that it contributes to increased compliance and avoids undue accommodation of poorly performing companies. Further, spending cuts for supervision and enforcement of environmental regulations have raised concerns and their impact should also be monitored.

The government is also exploring changes to the existing liability regime as part of efforts to better deal with the potential impacts of new, emerging risks (from new substances and technologies). The aim is to make companies liable for negligence in the case of negative impacts arising from these risks to act as an incentive for them to identify and control such emerging risks. This could also help save resources dedicated to enforcement.

3.5. Environmental information and policy evaluation

The Netherlands has a very comprehensive system of environmental information and strong policy evaluation mechanisms, which could be further exploited. The country is privileged to have world-class, independent research institutions (e.g. the Netherlands Environmental Assessment Agency, Central Bureau of Statistics, universities, etc.), which provide a strong scientific evidence basis for the formulation and evaluation of environmental policy. However, the outcome of the work of these institutions is not always used in policy making to the extent that it could be. The country uses a high quality strategic environmental assessment (SEA) and environmental impact assessment (EIA) for plans and projects with possible environmentally-sensitive consequences. The Netherlands Commission for Environmental Assessment (NCEA), which reviews and reports on the scope and quality of environmental assessments, exerts significant influence.

Recommendations on environmental governance and management

Environmental governance framework

- Develop a clear, comprehensive, long-term vision for environmental policy that provides a coherent framework for specific medium- and short-term action plans. The vision should reinforce and support the cross-sectorial approach embodied in the Environment and Planning Act.
- Seize the window of opportunity provided by the introduction of the Environment and Planning Act and the introduction of secondary legislation to establish a strong footing for securing environmental performance in the context of the recent decentralisation

Recommendations on environmental governance and management (cont.)

trend, providing greater discretion to sub-national authorities in balancing economic, social and environmental considerations.

- Continue to strengthen efforts related to external safety (including preventing chemical accidents). This may include improving guidance for companies on how to deal with specific external safety issues; extending the enforcement of rules and considering the performance of SMEs; improving the transparency of the permitting process to promote accountability and public participation; and working with (large) companies to enhance their safety culture.
- Better exploit potential synergies between the Water Framework Directive and Natura 2000 by, for example, giving greater weight to ecological considerations in water management.
- Ensure the newly established Environmental Services (ODs) carry out their tasks in an effective manner that will support strong and consistent environmental performance. This could be supported by: consolidating the number of ODs (considering economies of scale, possible specialisation and the relevant ecological scale); ensuring sustainable funding; strengthening mechanisms for the exchange of good practice and expertise among ODs; establishing national mandatory quality criteria; and monitoring the quality of performance.

Voluntary agreements

- Consider using voluntary agreements such as covenants and “Green Deal” projects in a more selective manner by limiting their use to circumstances where “win-win” solutions can lead to expected policy outcomes without reliance on regulatory sanctions.

Environmental compliance and enforcement

- Continue to explore the possibility to improve the existing liability regime as part of efforts to better deal with the potential impacts of new, emerging risks.

Environmental information and policy evaluation

- Strengthen the link between science, policy analysis and policy evaluation, while reinforcing the capacity and knowledge base for environmental policy within relevant ministries by making better use of the available research outcomes. In particular, reinforce the independence of public research institutes, strengthen the use of independent policy assessment and cost-benefit analysis, and broaden the use of explicit carbon values in policy evaluation.

4. Towards green growth

The Netherlands has made progress towards green growth over the review period, but at a moderate pace. Building on the Sustainability Agenda launched in 2011, the government further elaborated its green growth aspirations in a Memorandum to the House of Representatives in March 2013. The document set out the four pillars of the government’s policy for green growth: smart use of market incentives; an incentivising framework with legislation that promotes dynamism; innovation; and the government as a network partner (Government of the Netherlands, 2013).

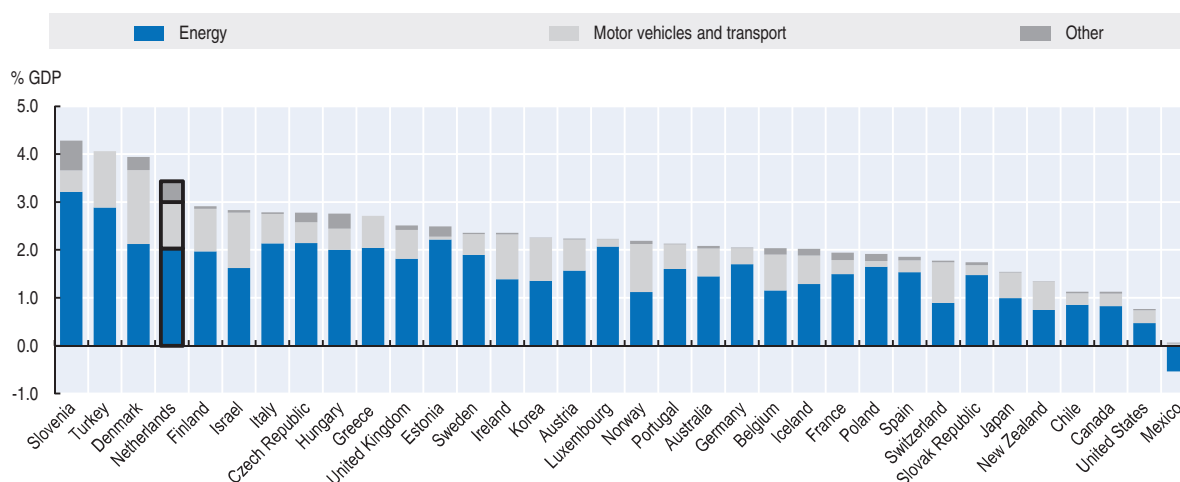
The 2013 Energy Agreement for Sustainable Growth of the Social and Economic Council of the Netherlands (the Energy Agreement) provides the cornerstone for Dutch climate and

energy policy. The agreement succeeded in creating a common understanding around shared goals for energy and climate policy among a broad spectrum of stakeholders. It spells out objectives and policy instruments for the energy sector, aiming to secure a high degree of stability in climate and energy policy for the longer-term. Objectives include improving energy efficiency, scaling up renewable energy, phasing out the least efficient coal-fired power plants and reducing CO₂ emissions from transport, as well as promoting employment, innovation and investment. However, early assessments indicate the policy measures agreed may not be sufficient to reach the stated objectives.


4.1. Environmentally related taxes

As part of the green growth toolbox, the Netherlands continues to use a number of potentially cost-effective economic instruments, such as emissions trading systems and indexed environmentally related taxes, which are raising a significant amount of revenue. Measured as a percentage of GDP, only three other OECD member countries (Denmark, Turkey and Slovenia) raised more revenue from environmental taxes in 2013 (Figure 2). Further, the share of this revenue coming from tax bases other than energy and motor vehicles was among the highest across the OECD.

Figure 2. **The Dutch raise more revenue from environmentally related taxes as a share of GDP than most OECD member countries, 2013**



a) Until 2014, the system used to stabilise end-use prices of motor fuels caused tax revenue to turn negative (i.e. become a subsidy) in years when the international oil price was high. Mexico's 2013 Tax Reform corrected this mechanism and introduced a tax on fossil fuels based on their carbon content, which will yield positive revenue. Source: OECD (2015), *OECD Database on Instruments Used for Environmental Policy and Natural Resources Management*.

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There is scope to improve the design of several environmentally related taxes, including energy taxes, to enhance both their environmental effectiveness and cost efficiency. Currently, energy taxation has been designed primarily taking into account the climate impacts of energy consumption of small users, particularly households. Large energy users – and greenhouse gas emitters – face much lower tax rates at the margin than small-scale users. This is largely due to the fear of negative competitiveness impacts of higher taxes on the energy use or carbon emissions of large companies. However, recent OECD studies (Arlinghaus, 2015; Flues and Lutz, 2015) have indicated that such fears are not well founded, at least for taxes not much higher than current levels.

Further, energy taxation is applied unevenly across energy sources and there are large differences in the effective carbon tax rates on energy use. Thus, energy tax rates do not reflect well the relevant environmental damages, including local air pollution. For example, the current tax rate on coal is very low, when considering the environmental damages of coal use on air quality, even before a planned exemption for the use of coal in electricity generation is taken into account. The OECD has recently estimated that the social cost of mortalities due to outdoor air pollution in the Netherlands was about USD 25 billion in 2010.

While it is important to address negative impacts on low-income households of the relatively high tax rate on electricity, the lump-sum compensation of EUR 312 per electricity network connection results in a negative electricity tax for about 10% of households. This can be explained in part by the fact that lump-sum compensation is supposed to cover taxes on both electricity and natural gas, but for administrative reasons, it is deducted only from the electricity bill. On the other hand, the surcharge on the electricity tax introduced to finance the increasing subsidies for renewable electricity (for which no additional lump-sum compensation will be provided) is expected to cause a 50% increase in electricity bills for households up to 2020. This increase will come on top of already high electricity costs, compared to other OECD member countries.

Further, the distributional impacts of the subsidies to renewable electricity generation could be problematic, as low-income households generally have limited scope to take advantage of the subsidies (by installing solar panels, for example), but will have to contribute to financing them.

The country has a large share of low-polluting modes of transport, including a comparatively low share of diesel cars due in part to the higher purchase and annual taxes on diesel than on petrol vehicles. However, it is notable that the total tax rate on petrol is significantly higher than the tax rate on diesel. The government has encouraged the use of low-emission vehicles via the very progressive CO₂ differentiation of motor vehicle taxes, as well as specific tax preferences for hybrid and electrical vehicles. These measures caused the average CO₂ emissions of newly registered passenger vehicles in the Netherlands to be the lowest across EU countries in 2014. Yet, given the EU-wide “cap” on the average CO₂ emissions of all new vehicles, the impact of measures by the Netherlands on EU-wide emissions will be small or non-existent if the EU-wide fuel economy constraint is binding, but these measures impose fiscal losses on the Netherlands.

The fiscal sustainability of environmentally related taxes is an important consideration, given that they raise a significant share of tax revenue. Energy and motor vehicle taxes alone represent about 8% of total tax revenue. Environmentally related tax rates in the Netherlands are indexed to inflation, securing their environmental effectiveness and contributing to their fiscal sustainability over time. However, measures leading to low-polluting modes of transport, along with rapidly improving vehicle fuel efficiencies, have caused significant tax-base erosion for vehicle taxes. The Netherlands, therefore, needs to consider an alternative design of its vehicle taxes, including considering road pricing, taking foreseen technological changes into account.

Environmentally harmful subsidies in the Netherlands in 2010 amounted to between EUR 5-10 billion according to estimates by PBL (2011b). Although environmentally harmful subsidies to the agriculture sector have been greatly reduced over the past years, around one-third of the subsidies estimated by PBL relate to agriculture. This contributes to a very intensive livestock sector in the Netherlands, leading to important nutrient run-off.

There are also a number of exemptions and refund mechanisms in Dutch energy taxes mainly benefiting large-scale users. These include a refund of the energy tax for large industrial electricity consumers under certain conditions; reduced natural gas tax rates for the horticulture sector when participating in energy efficiency agreements; and rebates and subsidies for energy distribution firms to deploy combined heat and power, energy-saving technologies and renewable electricity.

4.2. Environment-related investment and financing

The Netherlands has implemented a complex system of instruments, including feed-in-tariffs, regulatory standards, tax incentives, accelerated depreciation and energy tax rebates for companies entering into long-term agreements with the government. While these instruments have stimulated large investments in clean energy, mainly biomass co-firing until 2013 and onshore wind energy, the Netherlands is not on track to meet its objectives on renewable energy and energy efficiency under the 2013 Energy Agreement. Further, support measures have not been effective enough to achieve interim targets under the EU's Renewable Energy Directive. With the implementation of support scheme SDE+ in 2011, the share of renewable energy is expected to grow significantly from 2017 onwards (ECN, 2014). However, this positive forecast is subject to favourable development of uncertainties surrounding co-firing of biomass in coal-fired plants and operation of delayed large offshore wind projects.

Since the early 2000s, several changes in targets and support measures have made the investment framework for renewable energy and energy efficiency unstable. There are questions about whether clean energy investments would have been made without public support and the resulting windfall gains. There are also questions about cost effectiveness of tax relief to promote better environmental outcomes. The evaluation of the Energy Agreement, planned in 2016, should provide the basis for reviewing the set of instruments.

Between 2000 and 2011, environmental expenditure remained at around 2% of GDP, a relatively high level compared with other European countries. As in other OECD member countries, waste and wastewater management are the main expenditure items, accounting for more than half of the total. Investment in wastewater treatment has grown faster than all other areas, helping the country to comply with the EU Urban Wastewater Treatment Directive and to meet the highest treatment standards. The Netherlands has a solid system for financing water resources management. Nearly all financial costs of service provision are recovered through charges, levies and taxes. However, the contribution from the various sectors (households, agriculture and industry) to cost recovery is unclear as is the extent to which price incentives stimulate efficient water use.

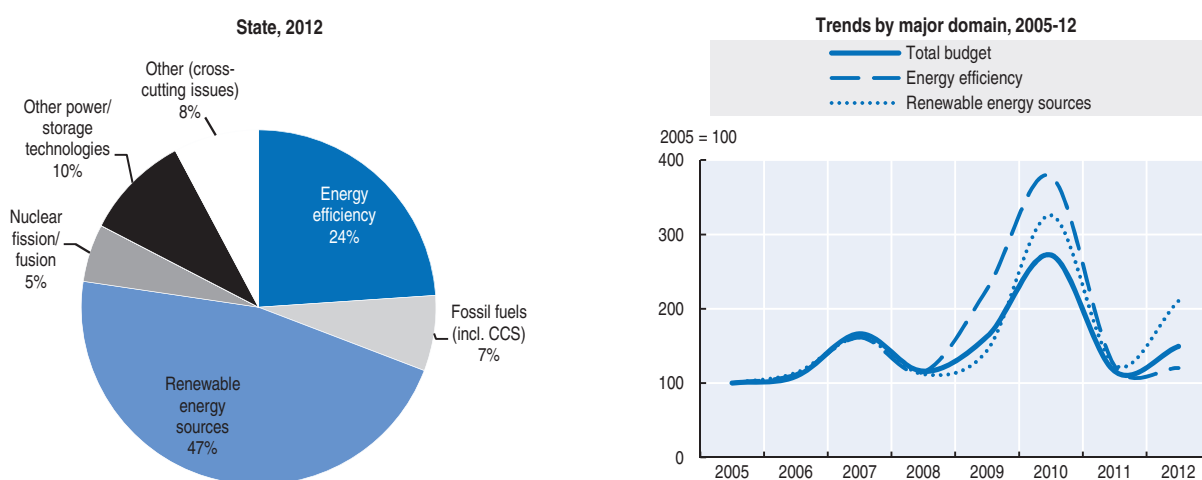
4.3. Promoting eco-innovation and environmental goods and services

The environmental goods and services sector grew faster than the whole economy in the past decade, in particular since 2005. In 2012, it accounted for 2.1% of GDP and 1.8% of employment, broadly in line with the EU average. As in other OECD member countries, waste and wastewater management, renewable energy and energy saving are the most important activities. The production of renewable energy has been the fastest growing activity both in terms of value added and employment. The number of jobs in government administration related to environmental protection has been noticeably reduced since the global economic crisis.


Since the 1970s, strong environmental and innovation policies have helped the Netherlands develop innovation capacity in environment-related technologies, which

boosted the economy's productivity and competitiveness. Over 2000-11, the Netherlands has developed a comparative advantage in technologies related to energy efficiency in lighting, energy generation from biofuels and waste, and CO₂ capture and storage. It is still one of the world leaders in water technologies. However, it is lagging behind the most eco-innovative OECD member countries, which could affect its competitiveness in the future. Public investment in energy research development and demonstration (RD&D) rose between 2005-10, dropped sharply in 2011 and only partially recovered in 2012 (IEA, 2014) (Figure 3). While the government R&D budget is set to fall in the period to 2018, the share of environment- and energy-related R&D spending (already below the OECD average at the start of the 2010s) is planned to be further reduced. This will weaken some of the country's world-class environment and energy research institutes.

Figure 3. **Strong fluctuations in public RD&D spending on energy**



Note: Government budgets for research, development and demonstration (RD&D).
Source: IEA (2015), *IEA Energy Technology and RD&D Statistics* (database).

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Although there is no specific eco-innovation plan, green innovation activities have been supported under various initiatives such as the 2011 Top Sector policy, the 2013 Energy Agreement and the Green Deals programme. However, there are concerns that their leverage effect on private investment may not be sufficient to achieve the Dutch 2020 R&D objectives or its targets under the Energy Agreement. Another concern is that larger firms and existing industries are better organised than SMEs and emerging industries, and can thus gain from a “first-mover” advantage in dealing with public support schemes. In 2013, a specific scheme (MIT) was introduced to strengthen innovative SMEs in top sectors; a positive development. There is a need for providing longer-term direction to research and a potential for better focusing support on green innovation. Adopting ambitious commitments such as those on the circular economy, ensuring the stability of the regulatory framework and public acceptance of renewable energy and energy efficiency policies are opportunities for boosting green innovation.

The system of investment support and tax incentives for R&D and environment-related technologies could be reviewed to ensure its consistency and efficiency in fostering the most innovative technologies, while achieving environmental objectives. For example, the subsidy for renewable energy has favoured low-cost and proven technologies. More

attention could also be given to non-technological innovation, for example, in the water sector. The Netherlands is among the most advanced EU countries in green public procurement. However, there is potential to shift rewards to reap greater environmental gains and to apply life-cycle costing.

4.4. Trade, development and environment

In 2013, the Netherlands was the sixth-largest donor of the OECD Development Assistance Committee (DAC) with 0.67% of its gross national income given as official development assistance (ODA). This is below the United Nations target of 0.7% for the first time since 1975 and the development budget is planned to be further cut by EUR 3.3 billion over 2014-17. Since 2000, environment-focused aid decreased to 10% of total sector allocable aid in 2012-13, a very low share compared with the DAC average of more than 30%. In contrast, Dutch aid related to climate change has risen with a strong focus on adaptation, notably for water management, climate-smart agriculture and emergency preparedness in least developed countries. All Dutch-supported interventions are screened for environment and climate issues. However, the recent focus on climate should not crowd out other important environmental issues, particularly biodiversity, forests and broader natural resource management.

Recommendations on green growth

- Ensure the assessment of the 2013 Energy Agreement planned for 2016 is carried out in a thorough, independent and transparent manner. If this assessment indicates that it is unlikely that the agreed objectives will be met, or if the cost effectiveness of certain instruments is low, changes should be made to increase the environmental effectiveness and economic efficiency of Dutch climate and energy policy.
- Consider a partial switch from taxation of electricity towards taxation of natural gas use in households. As natural gas use is not covered by the EU ETS, this would lead to lower EU-wide GHG emissions. Consider contributing to effectively making the “cap” of the ETS stricter by buying and retiring some emission allowances. Reconsider the planned tax exemption for coal used in electricity generation, taking into account the impact of such a tax on local air pollution. Carefully consider the long-term fiscal sustainability of the current vehicle taxes.
- When assessing the introduction – or reintroduction – of environmentally related taxes, the environmental benefits that these taxes can stimulate should be considered on par with their administrative cost and their revenue generation potential. Even if the revenue generation potential of some taxes may be small, the environmental advantages they might contribute to could justify their implementation.
- Develop an ambitious framework for promoting eco-innovation that includes a balanced and consistent mix of increased public support for R&D, demand-side measures and partnerships with the private sector, with a focus on frontrunner SMEs; maintain a stable and clear policy and investment framework for innovation to support policy objectives, such as those for the circular economy and renewable energy; continue to refine criteria for public procurement to reap greater environmental gains and encourage green procurement approaches in the private sector.
- Ensure a strong and balanced commitment to the environment and climate within an increased volume of official development assistance, in line with international commitments.

5. Sustainable mobility

The Netherlands has managed to achieve and maintain a high share of environmentally friendly modes of transport. There is a relatively low share of diesel cars, biking is an important mode of urban transportation and goods transport on inland waterways is almost as important as road freight. The country is an important global transport hub, with the Port of Rotterdam the largest port in Europe. Since 2000, overall, freight and passenger transport volumes have been stable (except for rail freight, but this is a small share of the total transport per rail), as is the case in many high-income countries. Incoming freight transit traffic has increased, however, due to the growing internationalisation of economic activity; national freight traffic has decreased due to the shift in economic activity towards services.

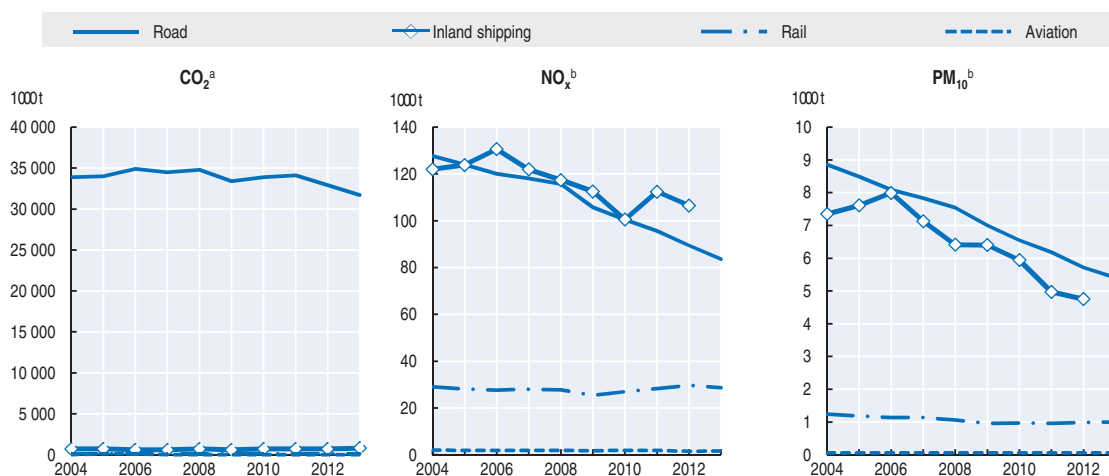
In the coming years, the very densely populated Randstad (the metropolitan area with the four largest cities of Amsterdam, Rotterdam, The Hague and Utrecht) will continue to attract more inhabitants and commuters. This will raise congestion issues for road, rail and local public transport. With one of the most dense and congested road networks in Europe, the Netherlands has benefited from road capacity-enhancing measures. However, as the easy wins in terms of better road management have largely been exhausted, a further increase of road traffic is unlikely to be solved by additional road capacity alone, leaving road pricing as a principal policy option to address congestion. A proposal for road pricing had been considered as early as 2005, but was set aside when the government resigned for unrelated reasons, resulting in a missed opportunity. Evaluations of the proposal at the time indicated the cost of implementation, as well as a lack of public acceptance and support in Parliament posed significant barriers. The 2013 Energy Agreement includes plans to begin studying road pricing again as of June 2016.

All air pollution emissions from transport have declined significantly since 2004, except for CO₂ emissions, which have decreased only slightly since 2008 (Figure 4). Stricter emission standards for cars, as well as the economic recession and subsidies for more fuel-efficient cars, have driven emission reductions. Air quality in zones with intensive road traffic has strongly improved, although some hot spots remain, in particular around major cities and transportation corridors. The EU annual limit concentrations of particulate matter (PM₁₀) and nitrogen dioxide (NO₂) are only exceeded along a limited number of roads. There has been a clear improvement compared to 2004.

Fewer hours have been lost to congestion in nearly all congestion-prone regions over the last three years. This is explained, in part, by a 42% decrease in travel time losses due to more road capacity in heavily congested areas despite a 30% increase in travel time losses due to an increase in traffic volumes since 2004. The latter was caused by growth in population, employment and car ownership. The 2013 Energy Agreement includes a number of mostly voluntary measures to reduce congestion. An example of a voluntary measure agreed under a previous programme included a system of 16 regional covenants to reduce the number of car trips. This agreement has fallen short; the number of trips has dropped by 1.5% instead of 5% over several years.

Noise hindrance from transport has declined, with the number of houses exposed to “high noise levels” (more than 65 decibels) along national roads reduced by over one-third between 2006 and 2011. The country has an ambitious plan to continue reducing noise levels of road, rail and air transport, in line with the rising sensitivity and attention of the population to noise issues. This is important, given the country’s high population density


Figure 4. Air pollution emissions from transport declined, 2004-13



a) Emissions from road, water, rail and air transport reported according to the IPCC guidelines and calculated on the basis of motor fuel sales in the Netherlands.

b) Emissions from mobile sources, excluding emissions from mobile machinery, fishery and seagoing shipping.

Source: CBS (2015), StatLine (database).

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and the fact that health damage of noise could well be underestimated. A noise innovation programme resulted in cheaper solutions to reduce noise at the source. As the main airport is in a densely populated area, the Netherlands faces a challenge in managing noise levels around airports at acceptable levels for residents.

The Dutch road system performs well in international comparisons of traffic safety. Over the last 12 to 15 years, improvements include better car technologies, road design (for instance, the building of roundabouts) and traffic regulation, which have helped reduce car fatalities by more than half.

Successive governments have put forward many different policy visions for sustainable mobility over the last ten years. Policy changes are needed when external conditions change dramatically, such as the revision of tax and subsidy programmes due to the recession. It is less clear why policy has changed significantly to deal with other issues, such as climate change and road and congestion management. The Netherlands can build on a strong tradition of scientific excellence and independent policy assessment by its public agencies. This is an important input for mobility policies and plans, and the independence of these institutes should be reinforced and maintained. There is traditionally strong co-operation and co-ordination between local, provincial and national authorities.

Policies to contribute to climate mitigation goals in the transport sector were not always cost effective. For example, the Netherlands restructured vehicle purchase taxes into a progressive carbon tax. The reform has been very effective at inducing the purchase of vehicles with lower CO₂ emissions, but has come at a very high cost per tonne of CO₂ abated. It also resulted in substantial tax base erosion. In addition, the net saving of CO₂ emissions has been smaller than expected, due to a rebound effect. Furthermore, monitoring studies have revealed a significant and growing discrepancy between actual CO₂ emission reductions and those calculated on the basis of emission data from the European driving cycle test results; actual emission reductions turned out to be only half of what was estimated by test values (PBL, 2015b). On the positive side, contrary to most other EU countries, the Netherlands did not inadvertently encourage the purchase of diesel cars

by maintaining a specific annual vehicle tax for diesel cars. These vehicles may offer a small advantage in terms of GHG emissions, but are more harmful in terms of conventional emissions (NMVOC, NO_x and PM₁₀) than gasoline cars. A car scrapping scheme was implemented for a short period from 2009 to 2010. Analysis has shown, not surprisingly, that the net effect of such schemes on CO₂ emissions is low or even negative, as well as being very costly. The country will continue to face a challenge in preparing the transport sector for ambitious EU 2030-50 carbon emission targets.

The Netherlands has very actively promoted low-emission vehicles and has achieved the highest penetration of electric cars in the EU. The Netherlands aims to put 15-20 000 electric vehicles on the road by the end of 2015 and 1 million by the end of 2025. In 2014, more than 31 000 low-polluting vehicles were already on the road. However, most of these vehicles were plug-in hybrid vehicles, which drive only a portion of kilometres electrically. Because the electricity for electric charges is covered by the EU emissions trading system cap, when driven electrically, they do not contribute to additional carbon emissions (outside of the cap) nor do they emit almost any conventional air pollution (NMVOC, NO_x and PM₁₀). While low-emission vehicles may be a technology of the future, any cost-benefit analysis will show they are a very costly approach to reduce CO₂ emissions. However, stimulating low-polluting modes also aims to create an ecosystem that fosters innovation and green growth. The Netherlands has made electric vehicles a strategic priority and aims to be a frontrunner. In addition, at present, they are the only way to achieve the EU objective to decarbonise urban transport.

A recent study by Mandell and Proost (2015) suggests that countries that do not implement distance-based road charging for trucks, like the Netherlands, could risk losing a lot of their excise tax revenues if they decline to do so, as neighbouring countries have already done or are doing. As international trucks can decide where to take fuel, countries with a distance charge can always increase slightly their distance charge and lower their diesel excise, thereby undercutting the diesel excise of neighbours without distance charges. The gradual adoption of distance-based charges in the EU has arguably improved the effectiveness of taxation in addressing the externalities of road transport (Van Dender and Parry, forthcoming).

The number of passengers using Dutch airports has grown by 33% since 2004 and growth is likely to continue if real incomes grow. An air passenger tax was introduced in July 2008, but abolished a year later largely due to concerns that it would cause potential passengers to fly from neighbouring countries. However, soon after the Dutch tax was abolished, Germany introduced a similar tax. A tax on extra-European flights could help internalise some of the externalities caused by aviation, at least until a global system to address such externalities is agreed. Such a tax would need to be considered in the broader international context of the airline industry.

Recommendations on sustainable mobility

- Allocate efforts to reduce carbon emissions across sectors based on a cost-efficiency analysis. For example, consider reducing the progressive CO₂ emission differentiation in the motor vehicle purchase tax; this would bring the abatement incentives per tonne of CO₂ emitted from high-emission vehicles more in line with the marginal abatement cost found in other parts of the economy.

Recommendations on sustainable mobility (cont.)

- Reconsider the introduction of road pricing for cars, differentiated across place and time, possibly limited to the most congested zone of the country (Randstad). This can be done in a revenue-neutral way by substituting the vehicle purchase and ownership taxes and reducing motor fuel taxes.
- As long as road pricing is not introduced, the second-best option is to continue discouraging car use in urban areas through very high parking charges.
- Reconsider the pricing of public transport (local and rail) so it can cope with growing demand in the peak periods in the Randstad.
- Consider the introduction of distance-based road charging for trucks, as all neighbouring countries have already done or are doing. Trucks have become more fuel efficient and their options to fuel abroad limits the regulating and financing function of diesel charges.
- Consider the introduction of a passenger tax on extra-European aviation, together with neighbouring countries that have not already done so, taking into account potential competitiveness impacts in the broader international context of the airline industry.
- Continue efforts to reduce negative environmental impacts of transport, including through the ambitious plan for noise reduction. Evaluate the potential net benefits of further emission reductions in remaining air pollution hot spots.

6. Waste and materials management

The Netherlands is one of the OECD's best performers in the area of waste prevention and management. Since 2000, the country has considerably reduced the amount of waste it has generated, achieving absolute decoupling of waste generation from GDP. The amount of municipal solid waste (MSW) produced on a per capita basis fell by around 10% between 2000 and 2013, but remains just slightly above the OECD average. Over the review period, there has been a continuous move from waste disposal operations towards very high levels of recovery (including reuse, recycling and incineration for energy recovery) across all waste streams.

The Netherlands is one of the pioneers of sustainable waste management planning in the OECD. It has successfully achieved progressively ambitious targets set out in its National Waste Management Plans, but maintaining this trend may become increasingly difficult. For example, the impact of the global economic crisis dampened overall consumption, leading to reduced waste generation. As the economy recovers, one of the main challenges will be to ensure that waste generation does not rebound. Ongoing efforts to increase material recycling and composting of MSW and waste from business, government and services have resulted in marginal improvements; the proportion of waste recycled and composted has barely changed since 2000. As recycling rates are already relatively high compared to other OECD member countries, making further gains is difficult, but results from several local communities are promising.

Since 2000, emissions of most air pollutants from the waste sector declined, although nitrous oxide (NO_x) emissions increased from 2005. Greenhouse gas emissions from the waste sector dropped sharply (around 60%), largely due to minimising landfilling and the shift towards incineration of waste for energy recovery, since the emissions from these facilities are attributed to the energy sector. The Netherlands' status as a major importer and exporter of waste expanded considerably during the review period. In 2013, between 1.6-1.7 million tonnes (Mt) of waste was imported for incineration, most of it coming from the United Kingdom.

There has been a marked shift from landfilling to incineration, and within incineration, a shift from disposal to energy recovery. Incineration for energy recovery helps the Netherlands meet its EU renewable energy targets. One of the main drivers of investment in incineration capacity has been the application of high and increasing landfill taxes up to 2011, along with a landfill ban on many types of waste. High levels of investment in incineration resulted in overcapacity in the sector and also may have discouraged greater recycling rates. Recently, the government re-introduced the landfill tax and extended the coverage for the first time to include the incineration of Dutch residual waste; imported waste is exempt. The tax rate for incineration has been set primarily with an objective to generate a stable stream of revenue. But it may be too low to deliver sufficient incentives for more recycling and further reductions in waste generation.

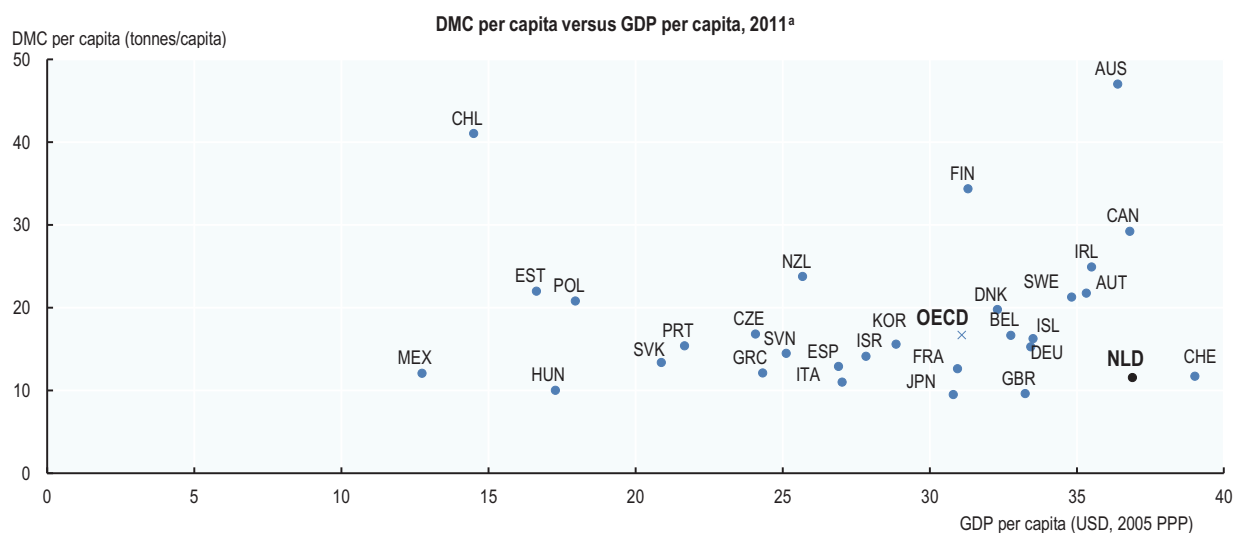
The review period saw the successful liberalisation of the waste treatment market, improving market competition. The cost of waste management increased less than inflation, while the environmental performance of the sector increased across most, but not all, measures. Declining incineration gate charges led to lower waste management costs for municipalities and customers. The country is one of the best performers in the OECD in MSW management, while keeping MSW charges at some of the lowest levels in OECD Europe and attaining nearly full cost recovery; this is a considerable achievement.

The use of “pay as you throw”, or “Diftar”, charging schemes has generally improved the efficiency of waste management. These schemes allow for lower waste levies compared to non-differentiated rate schemes, as well as promote higher levels of waste separation. This reduces the amount of separation involved for municipalities and increases the value of the waste collected. There is further scope for use of Diftar schemes, especially in large and medium-sized cities. Another promising development is the use of reverse collection schemes in which the service offered for separated waste is better than that offered for unseparated waste.

The Netherlands excels in areas that have presented problems for other countries, such as the provision of high quality waste data, monitoring and enforcement, and awareness raising for the public. It was one of the first OECD member countries to introduce extended producer responsibility (EPR) schemes in the 1990s and has benefited from experimentation with various approaches and extensive dialogue with stakeholders. Currently, it has a system based on charging schemes set up by producer responsibility organisations (PROs). Overall, the current approach enjoys both greater economies of scope (compared with having a large number of PROs) and reduced administrative costs (compared with a taxation-based system), although some systems, like the one for plastic packaging, remain very expensive.


The Netherlands has taken significant and quite innovative steps to discourage illegal waste shipments, such as implementing risk-based information technology tools. At the same time, the high and increasing levels of trade coming through Dutch ports make it challenging to monitor and discourage illegal shipments. This may call for further increased investment to strengthen efforts to enforce EU and international laws on waste shipments.

Over the past several years, the Netherlands has been laying the groundwork for a transition beyond traditional waste management towards a circular economy. It is already one of the most resource-efficient members of the OECD in terms of GDP per unit of domestic material consumption (DMC) (Figure 5). The government has set out ambitious strategic objectives and broad lines of action to stimulate this transition, although policy

Figure 5. **The Netherlands is one of the most resource-efficient economies in the OECD**

a) Domestic material consumption (DMC) designates the sum of domestic extraction of raw materials used by an economy and the physical trade balance (imports minus exports of raw materials and manufactured products).

Source: OECD (2015), "Material resources", *OECD Environment Statistics* (database).

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development remains in early stages, as in other OECD member countries. The government is working with a range of Dutch stakeholders to draw lessons from pilot projects and to consider targets that could be set, monitored and measured. Putting the vision for the circular economy into action in a cost-effective way will require realistic targets informed by cost-benefit analysis. It will also require overcoming challenges presented in this new area, such as the need to develop new business models and dealing with commodity price volatility. The transition also requires new ways of working across the whole product chain and new product design and ownership models.

Recommendations on waste and materials management

- Maintain absolute decoupling of waste generation from GDP to avoid a potential rebound as the economy recovers by reinforcing efforts to reduce waste generation in the next iteration of the National Waste Management Plan. Consider an objective for the reduction of hazardous waste in the next iteration of the National Waste Management Plan, which was not done in previous plans.
- Consider the design of an emission-based tax as an alternative to the input-based tax now in place for the waste tax. This would provide a much more direct incentive to operators of incinerators to limit the environmental damages related to the combustion process as much as possible. Since environmental damages occur regardless of the origin of the waste treated, removing the exemption on imported waste could also be considered.
- Encourage broader uptake of schemes, such as "Diftar" charging schemes and reverse collection, which have been shown to promote greater separation of waste and lower the cost of treatment. There is significant scope for uptake in large and medium-sized cities. Encourage measures to promote further separate collection of plastic waste, without increasing waste treatment costs.

Recommendations on waste and materials management (cont.)

- Explore ways for EPR schemes to support the circular economy by going beyond just waste management and promoting systems that have an influence on sourcing, design and consumption phases; improve the quality of recycling within EPR schemes.
- Continue to support and reinforce efforts to minimise illegal waste trade, such as through the use of the risk-based approach to identify possible waste shipments, as well as to ensure that such waste is properly handled once identified. This may call for further increased investment over the coming years to strengthen efforts to enforce EU and international laws on waste shipments.
- Develop a roadmap for specific actions to promote the circular economy and a timeline for implementation; strengthen product policies to deliver stronger incentives for designs that are conducive to the circular economy, such as through product labelling and information, as well as specific design criteria where appropriate; promote reuse and remanufacturing, including through fiscal incentives (such as lower VAT for repair services), minimum quality standards and warranties, legal requirements on the availability of information and spare parts for repair and facilitating (as appropriate) recycling, refurbishment, reuse and repair in the relevant legislation.
- Encourage innovation through the Green Deals approach; develop policies that can support the emergence of new business models conducive to the circular economy, such as those based on services rather than the sale of goods; explore dynamic standard setting that can spur innovation; use green public procurement to support the circular economy.
- Put in place policies and measures that help to overcome information barriers and issues with access to finance, in particular for SMEs where the capacity to identify and implement resource efficiency opportunities is more constrained.
- Prioritise the development of indicators to monitor resource productivity and progress towards a circular economy; consolidate and further develop material flow accounts by industry and improve the coherence between waste and material flow statistics (especially for secondary raw materials and recycling rates); encourage the inclusion of circular economy and resource productivity indicators (physical and financial data) in reporting by businesses and financial institutions.

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ANNEX

Actions taken to implement selected recommendations from the 2003 OECD Environmental Performance Review of the Netherlands

RECOMMENDATION	ACTIONS TAKEN
Chapter 2: Environmental governance and management	
Retain and refine quantitative policy targets for reducing environmental pressures, and strengthen efforts to see that they are attained without slippage.	The Rutte I government (2010-12) explicitly announced it would redress environmental policy objectives to levels prescribed by the EU in order to establish a level playing field. The Rutte II cabinet has made one exception for the share of renewable energy in final energy consumption (16% in 2023, while the EU prescribes 14% in 2020).
Continue efforts to reduce emissions of NO _x , particulate matter and NMVOCs (e.g. from transport, energy and industry) in light of persistent problems with concentrations of NO ₂ , PM ₁₀ and ozone in some areas; implement the proposed NO _x emission trading scheme.	<p>The emissions of all substances showed a downward trend in 1990-2012. The major overall drivers for this trend are emission reductions in the industrial sectors, cleaner fuels and cleaner cars. The main contributors to the decrease of NO_x emissions are the road-transport and energy sectors, despite a growth in road transport. The decrease is mainly attributable to European emission regulations for new road vehicles. Also for NO_x, standards have been set for installations by tightening the extent of emission stocks of heating installations. In meeting these requirements, Dutch industrial plants have reduced NO_x emissions by 62% since 1990.</p> <p>NMVOC emissions decreased for all major source categories. For transport, this is mainly due to introduction of catalysts and cleaner engines. For product use, the Netherlands implemented an intensive programme to reduce NMVOC content in consumer products and paints. In the industry sector, a specific abatement for NMVOC emissions was introduced.</p> <p>For particulate matter, standards have been set for installations by tightening limits on emissions from heating installations. In meeting these requirements, Dutch industrial plants have reduced PM emissions by 93% since 1990. Cleaner fuels in refineries, along with the side effect of emission abatement of SO₂ and NO_x in traffic and transport, also helped reduce emissions.</p> <p>The National Air Quality Cooperation Programme (NSL) is designed to ensure the Netherlands meets the targets for concentrations of fine particulates (PM₁₀) and NO_x. The NSL programme will run until 1 January 2017.</p>
Strongly pursue implementation of policies to allocate “more space for water”, establish ecological networks and better protect areas at risk (e.g. from floods); in particular, integrate water management, nature management and spatial planning.	<p>The “Room for Rivers” programme was adopted in 2006. It sets out how more space for rivers can be provided to enhance safety and spatial quality in the area around the main rivers. The programme contains 35 measures that will contribute to 1 500 acres of nature area. There are also measures in the River Basin Management Plans (2009) to improve water quality, which aim to have a positive effect on ecological values. The measures seek synergies by combining different water tasks with Natura 2000 goals. For example, the construction of parallel channels in flood plains and the construction of natural banks (environmentally friendly banks).</p> <p>There has been a small cutback in the available budget.</p> <p>New water retention areas in the regional water system help to prevent flooding or retain water for dry periods. In these areas, the functions of water and nature are often combined. Also, measures have been taken to improve water quality in regional systems. As in rivers and lakes, these measures often also enhance nature.</p>

RECOMMENDATION	ACTIONS TAKEN
Further reduce nitrogen loads from intensive agriculture (livestock and crop production) in line with related international commitments (EU Nitrates Directive, North Sea Action Programme).	Various Nitrate Action Programmes contain measures taken to further reduce nitrate leaching. The fifth Nitrate Action Programme (2014-17) further tightens nitrogen application levels for certain regions by a maximum of 20% for crops prone to leaching. N-levels are relaxed for grassland in clay regions from 350 to 385 kg N/ha.
Strengthen efforts to integrate biodiversity, nature and landscape conservation among themselves and with spatial planning.	Natura 2000 management plans focus on maintaining and restoring favourable conservation status of listed species and habitats. Urbanisation and the urban-rural interface has traditionally been the main theme of national spatial planning. Against the background of less housing demand and lower demand for offices, the “new” urban question is one of transformation of existing cities, more than expansion. This will be addressed by the Minister for Housing (without the prospect of new funding). The “ladder for sustainable urbanisation” is available as a guideline: Rung 1: Is there regional demand for housing, offices, amenities, etc.? Rung 2: Can demand be met by restructuring or transforming existing locations? Rung 3: New locations should be accessible to multiple transport modes.
Extend the use of spatial planning and regulation to serve pollution abatement, nature, biodiversity and landscape conservation, as well as risk prevention.	Legislation concerning external safety has been implemented. The National Air Quality programme (NSL) contains elements of spatial planning: minimal distances between roads and buildings with vulnerable people (schools, hospitals). The Programme-based Approach to Nitrogen (PAS) seeks to reduce nitrogen deposition (NO _x from traffic and industry and NH ₃ from farming) on nature areas, using technical abatement measures, as well as spatial planning, to meet deposition targets. The programme seeks co-operation between stakeholders on national, regional and local levels. The National Policy Strategy for Infrastructure and Spatial Planning (SVIR) focuses on 13 national interests. Three of these interests are most relevant in this field: i) improvement of environmental quality (air, soil, water) and provide protection from noise pollution and external safety risks; ii) room to preserve and strengthen nationally and internationally unique cultural heritage and natural values; and iii) room for a national network of wildlife habitats to aid the survival and development of flora and fauna.
Enhance the role of provinces as a key level of policy integration, including environmental policy planning, land-use planning and water management planning.	The SVIR has been in force since June 2012. Central government intends to bring decision making on spatial planning closer to the stakeholders, delegating more to local and provincial authorities (through deregulation and decentralisation as the first option). Local and regional authorities will be able to make their own policy decisions, although they will be expected to contribute to simplifying and integrating spatial planning regulations. National-level planning policy focuses on 13 interests of national importance.
Further maintain a high-quality environmental information base and ensure continuity in environmental reporting activities.	The Minister of Infrastructure and Environment has commissioned a group of institutes to develop the “Atlas Leefomgeving”, a web-based tool to integrate spatial information and make it accessible to the general public. See www.atlasleefomgeving.nl/home .
Chapter 3: Towards green growth	
Extend the use of economic instruments (e.g. waste, water and transport management) and their incentive effects, in line with the user and polluter pays principles.	Progress has been made on the use of economic instruments, but in some cases taxes were introduced only to be later abolished. In most cases, this was linked to a reduced tax base or competitiveness concerns.
Refine market-based instruments and extend the environmental tax system, having regard to simplicity, effectiveness, transaction costs and carrying out cost-benefit analysis.	The Netherlands is one of the frontrunners in the OECD in terms of the revenue raised from environmentally related taxes as a share of GDP. Many changes have taken place over the last ten years. Simplicity and effectiveness have been of concern. There appears to be tension between solid revenues and effectiveness from an environmental perspective.
Couple the regulatory energy tax with pollutant emissions (carbon tax) and consider its extension to large companies in the case of non-compliance with environmental targets.	The regulatory energy tax has expanded since 2003. Tariffs differ between target groups. There is no direct link to the CO ₂ content. The Netherlands complies to a large extent with European emission targets.
Continue to work towards increased energy efficiency.	Energy efficiency has been a priority over the last decade and has been increased accordingly. An overview of the measures taken can be found in IEA country reviews of 2008 and 2014. The 2013 Energy Agreement aims to achieve a saving in final energy consumption averaging 1.5% annually.
Expand the use of renewable energy sources (e.g. in municipalities and large firms).	The use of renewable energy has been expanded mainly by subsidy schemes. The SDE+ is the latest such scheme. A full review of the policy measures can be found in the 2014 IEA country review. The 2013 Energy Agreement contains initiatives to raise production of renewable energy to 14% in 2020 (EU objective) and 16% in 2023 (national objective).

RECOMMENDATION	ACTIONS TAKEN
Strengthen and generalise requirements concerning environmental impact assessment to apply to all major projects financed through international assistance (ODA and non-ODA).	<p>There are several examples of actions taken to support this recommendation. The Ministry of Foreign Affairs (MFA) has renewed its agreement with the Netherlands Commission for Environmental Assessment (NCEA) until 2017. The NCEA is an independent expert body that provides advisory services and capacity development on environmental assessment. In international co-operation, the NCEA has operated under an agreement with the MFA since 1993, with a special focus on 18 countries eligible for Dutch international co-operation. In addition, the NCEA works in several other countries, under agreement with donors such as the Dutch Ministry of Infrastructure and the Environment, Dutch embassies, the World Bank, European Union, etc.</p> <p>The core of the NCEA's international work is to assist environment and sector ministries, environmental assessment professionals and nongovernmental organisations to achieve better environmental assessment practice. It provides advice, capacity development and improved knowledge and learning resources on environmental assessment (EIA/SEA). In this way, EIA requirements will be strengthened for both national and internationally (donor) financed projects and plans in those countries.</p> <p>The Dutch Sustainability Unit (DSU), established at the NCEA, supports the Ministry of Foreign Affairs in making its international interventions in the domain of water and food security more sustainable. The DSU pays particular attention to environment (including EIA and SEA), climate and gender equality issues.</p>

Chapter 4: Sustainable mobility

Strengthen or revive efforts to integrate environmental and sustainable development concerns into transport policy.	<p>The Netherlands has a multiple-year programme to facilitate the planning and building of spatial, infrastructural and transportation projects ("MIRT"). The spatial aspect was included in the process to ensure that infrastructural and transportation projects are well-embedded in their environment. The government is working on incorporating sustainability into the MIRT-system explicitly, by trying to take this into account in every phase of the project (from planning to building, maintenance and renovation). One measure to integrate environmental and sustainable development is the environment-index (<i>omgevingswijzer</i>) in infrastructural projects. This tool helps stakeholders gain insights in 12 aspects of sustainability, based on the "people-planet-profit" triangle. This enables them to consider the various options for a project more effectively.</p> <p>In the Getting Ahead Programme (<i>Meer Bereiken</i>), eight MIRT-research projects will be started, in which the aspect of sustainability will be strongly embedded. The government, local governments and public parties will work together even more closely than before.</p> <p>Basisnet, the national basic network for the transport of hazardous substances, sets legal risk limits for routes transporting dangerous goods on railways, roads or water. The same applies to the building code in the security zones along these routes. Municipalities must include these statutory building regulations in their spatial zoning plan, so developers and residents know exactly where they stand.</p>
Further internalise externalities into transport operation and pricing: strengthen the use of existing economic instruments and introduce new ones, such as the suggested per-kilometre tax on lorries and cars (with differentiated rates according to time, place and the environmental impact of each vehicle) or other relevant instruments.	<p>In 2007, the ruling administration decided to implement a pay-per-kilometre tax (<i>Anders betalen voor mobiliteit</i>). To prepare this legislation, the potential and possibilities (both technical options and public attitudes) were extensively investigated and a concept-plan was developed. Due to both lack of public acceptance and political coalitions, it was not desirable to implement a pay-per-kilometre tax.</p> <p>According to the current political coalition, there is no need to implement a pay-per-kilometre tax until 2020. One of the activities in the 2013 Energy Agreement is to further research a pay-for-use system. The first step will be taken by private parties. Nevertheless, a pay-for-use-system is still one of the possible measures for the future.</p> <p>A series of fiscal measures has been taken to stimulate the sale and use of (very) efficient and low-emission cars.</p> <p>In the Optimising Use Programme (<i>Beter Benutten</i>), measures have been taken to encourage people to avoid certain roads at certain times. The goal is to reduce congestion at the busiest points by 20% in 2014 with a great number of (sometimes small) measures. One of them is giving people a temporary financial reward to avoid the rush hours. This is an incentive to travel at different times and with different transport modes.</p>
Pursue efforts to reduce noise emissions from road, rail and air traffic (e.g. emission reduction at source).	<p>In 2012, new legislation came into force (SWUNG), ensuring there will be no increase in noise emissions on national infrastructure road and rail. Even when the amount of traffic increases, the emissions must remain the same. The latest SWUNG legislation is an addition and an improvement on earlier noise legislation. In the legislation, source measures are preferred above noise barriers. Only when necessary, additional measures can be taken.</p> <p>There are situations where noise levels are not increasing, but are already very high. For such situations, the SWUNG legislation included a single, large-scale measure to ensure noise abatement operations continue and to reduce existing high noise levels.</p>

RECOMMENDATION	ACTIONS TAKEN
Urgently define and implement a package of measures to reduce CO ₂ emissions from freight and passenger transport.	<p>With the 2013 Energy Agreement, the government, a large number of companies, environmental organisations and financial institutions committed to a series of goals to reduce CO₂ emissions. For transport, they agreed on maximum CO₂ emissions of 25 Mt, which means a reduction of 6 Mt (17%) on top of earlier goals.</p> <p>Parties to the agreement are working on a large number of measures to achieve the goals. A selection of activities follows:</p> <ul style="list-style-type: none"> ● developing a sustainable fuel vision to aim for efficient use and alternatives ● ensuring all new sold cars are zero emission in 2035 ● introducing fiscal incentives for the use of electric cars and creating infrastructure to enable the use of electric cars ● stimulating use of bikes and public transportation or making mobility more efficient through different measures. <p>Since the “Green Deals” programme was launched in 2011, over 160 deals have been agreed, many of them related to transport. The aim of Green Deals is to enable companies, local governments and other organisations to develop sustainable initiatives by removing barriers such as legislation, a shortage of (investments) funds or lack of co-operating partners. The Green Deals “Zero Emission City Distribution” and “Personal Mobility” aim to significantly reduce CO₂ emissions. The Optimising Use Programme has reduced congestion on roads. A follow-up on this programme (<i>Beter Benutten 2</i>) is in preparation for the period 2014-17.</p>
Chapter 5: Waste and materials management	
Take steps to ensure full implementation and enforcement of new international commitments concerning port reception and ship-generated wastes and cargo residues.	Directive 2000/59/EC on port reception facilities came into force in Dutch law on 1 January 2005. Adequate port reception facilities are available in all Dutch ports. Furthermore, indirect user charges and waste handling and management plans are implemented in all ports.

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