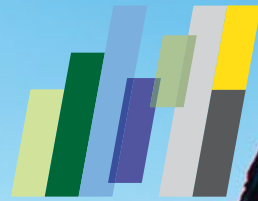


*Environmental  
performance reviews*



# New Zealand 2017

**HIGHLIGHTS**

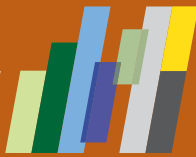


**OECD**

BETTER POLICIES FOR BETTER LIVES



# Environmental Performance Reviews



## WHAT ARE EPRs?

OECD *Environmental Performance Reviews* (EPRs) provide evidence-based analysis and assessment of countries' progress towards their environmental policy objectives.

They promote peer learning, enhance government accountability and provide targeted recommendations to help countries improve their environmental performance. They are supported by a broad range of economic and environmental data. Each EPR cycle covers all OECD member countries and selected partner countries.

All reports, and more information, are available on the EPR website: <http://oe.cd/epr>.

## THE THIRD EPR OF NEW ZEALAND

New Zealand joined the OECD in 1973. The previous *Environmental Performance Reviews* of New Zealand were published in 1996 and 2007. The report reviews the country's environmental performance since 2007. The process involved a constructive and mutually beneficial policy dialogue between New Zealand and the countries participating in the OECD Working Party on Environmental Performance (WPEP). The OECD is grateful to the two examining countries: Australia and the United Kingdom.

The EPR provides 50 recommendations, approved by the Working Party on 9 November 2016. They aim to help New Zealand green its economy and improve its environmental governance and management. Particular emphasis is on water resources management and sustainable urban development.

<http://oe.cd/epr>



*“New Zealand’s natural environment is part of its cultural identity and a pillar of its economic growth, but it can’t be taken for granted. It is vital to make full use of existing tools to curb environmental pressures.”*

**Simon Upton**

OECD Environment Director





# New Zealand

## Overview

New Zealand's natural environment provides tremendous benefits on several levels. Easy access to pristine wilderness and good air quality heighten quality of life for New Zealanders, while the spectacular landscapes attract millions of visitors every year. Apart from the economic benefits of tourism, the natural environment provides the basis for the country's large exports of dairy, meat, wool, fruit, vegetables, fish and wood.

But New Zealand's growth model is approaching its environmental limits. Greenhouse gas (GHG) emissions are increasing. Pollution of freshwater is spreading over a wider area. And the country's biodiversity is under threat.

### OPPORTUNITIES

- **an international reputation as a green and clean country**
- **an advanced and comprehensive natural resource management system**
- **a long tradition of public participation in decision making**
- **a well-developed research and innovation system with competitive advantage in several environmental technologies**
- **a low-carbon energy mix with 80% of power generated from renewables**
- **a major reform of national freshwater policy to safeguard water quality and availability**
- **a major reform of governance for Auckland, the largest city.**

### CHALLENGES

- **the largest share of GHG emissions from agriculture in the OECD**
- **a transport system highly dependent on roads and in need of coherent taxes**
- **local governments lacking national guidance in many environmental policy areas and struggling with insufficient resources**
- **rising freshwater pollution and scarcity in some regions**
- **complex urban planning that makes it difficult to reduce pressure on land use, housing and infrastructure from population growth.**

#### NEW ZEALAND 2015

##### Population

4.6 million

##### GDP/capita

(current purchasing power parities)

USD 37 300

(OECD average is 40 100)

##### Total area

267 711 km<sup>2</sup>

##### Population density

17 inhabitants/km<sup>2</sup>

(OECD average is 35)

##### Currency

New Zealand Dollar (NZD)

In 2015, USD 1 = NZD 1.434

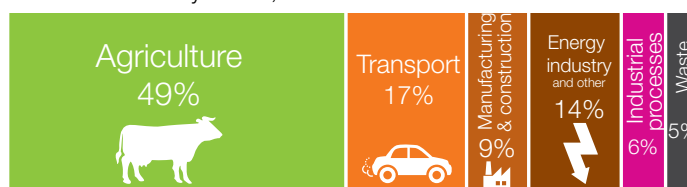
# Environmental performance | key trends

**The natural environment is deeply rooted in New Zealand’s cultural identity. By OECD standards, the country is sparsely populated. Land area is split between forests and agriculture, which occupy about 40% each. Most of New Zealand’s flora and fauna species are endemic (native to the country alone). New Zealanders are generally satisfied with their environment and the management of their resources, although more and more are concerned about water pollution and climate change.**

## CLIMATE CHANGE

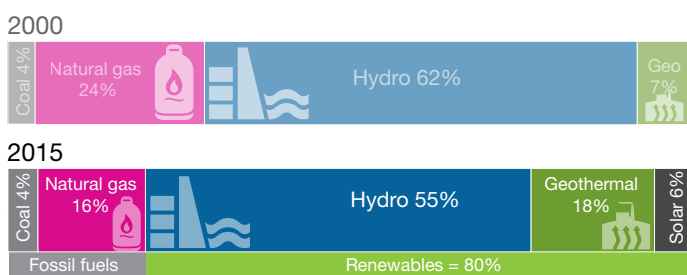
- Greenhouse gas (GHG) gross emissions increased by 6% between 2000-14, while decreasing by 5% in the OECD as a whole. GHG emissions per capita and per unit of gross domestic product (GDP) are among the top five in the OECD.
- Nearly half of the country’s GHG emissions come from agriculture (primarily methane from cattle and nitrous oxides from animal waste and fertilisers). This is the highest share in the OECD (Figure 1), and particularly challenging to address.
- Transport is the second largest emitting sector. People and freight travel mostly by road; the car ownership rate is the highest in the OECD. Further, the fleet is relatively old and inefficient.
- New Zealand has a low-carbon energy mix. Renewable sources represent 80% of electricity generation (Figure 2), among the highest shares in the OECD. The government aims to reach 90% by 2025.
- Energy consumption and associated GHG emissions have increased rapidly since 2010 in all sectors. New Zealand remains among the ten most energy-intensive OECD economies.
- The government ratified the 2015 Paris Agreement in October 2016 and committed to reducing GHG emissions by 30% below 2005 levels by 2030. The Emissions Trading Scheme (ETS) will be a key tool to meet this target. However, the ETS now excludes biological emissions from agriculture. Pricing or regulations are needed to curb these emissions.
- Local authorities must consider the effects of climate change in their decisions, but many struggle to plan effectively. The first vulnerability assessments have yet to be translated into sectoral adaptation strategies.

Figure 1. **Half of New Zealand’s GHG emissions come from agriculture**  
GHG emissions by sector, 2014



Note: Excluding emissions/removals from land use, land-use change and forestry.  
Source: "Greenhouse gas emissions by source", OECD Environment Statistics (database).

Figure 2. **Renewables represent 80% of electricity generation**  
Electricity generation by source



Source: IEA (2016), IEA World Energy Statistics and Balances (database).

## Next steps | climate change

- Develop a strategic plan to achieve the 2030 climate mitigation target. This plan should identify how mitigating domestic emissions and international carbon markets would contribute to achieving the target.
- Design and put into action a comprehensive package of GHG emission mitigation measures to complement the ETS. Address barriers to investment in low-carbon technology and practices in energy, industry, building and transport.
- Assess vulnerability of all major economic sectors to develop specific strategies for climate change adaptation; help local communities mainstream climate resilience into land-use planning.



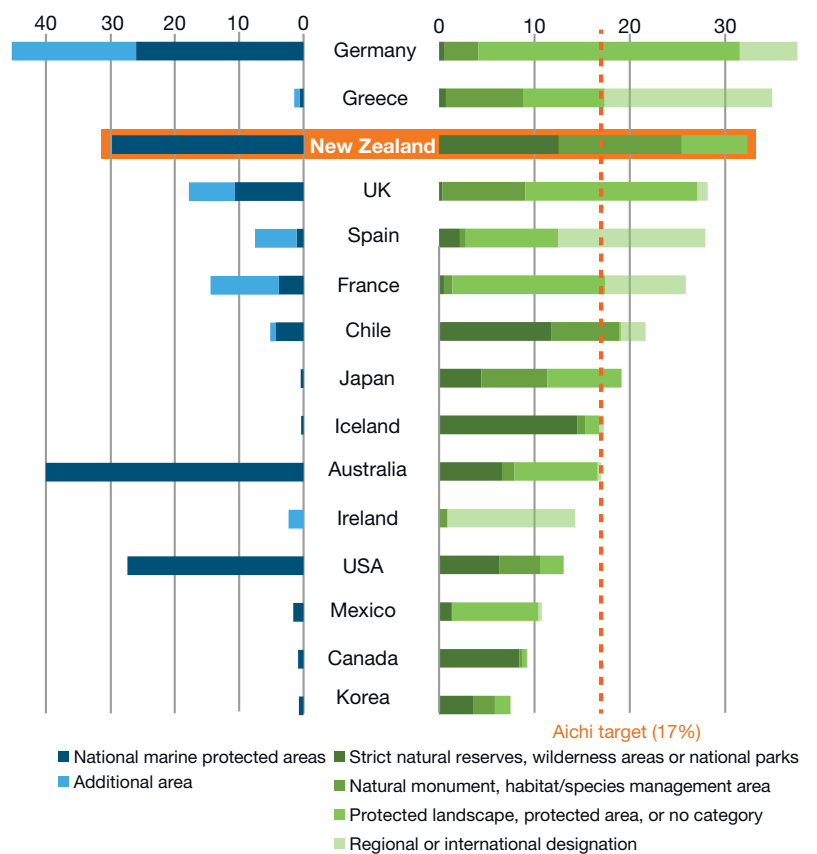


**BIODIVERSITY**

- Most flora and fauna species are endemic to New Zealand. Due to the country's location and natural history, these species evolved without the threat of mammals.
- Species extinction rates are among the highest in the world. More than half of amphibians, and roughly a third of mammals, birds, fish and reptiles are threatened. The main threats are invasive species, predators, and habitat fragmentation and degradation.
- New Zealand is a global leader in recovering species and controlling pests (see page 8). This expertise has helped improve the status of certain species, but others that are less of a priority continue to decline. Separating the management of species and ecosystems has made it more difficult to prevent loss of biodiversity.
- It remains difficult to integrate biodiversity protection into land-use planning and management. Landowners have few incentives to maintain biodiversity and ecosystem services on their land. A National Policy Statement for Indigenous Biodiversity, proposed in 2011, did not pass into law, largely because of opposition from private landowners. While little information is available, the state of indigenous biodiversity on private lands seems to be declining.
- Shares of protected areas are significantly higher than in most OECD member countries and well above international targets (Figure 3). Almost half of the terrestrial protected areas fall within the most stringent international categories for protection. However, not all ecosystem types are well represented in the network.

**New Zealand's marine environment is one of the world's most diverse. Yet most marine birds and more than one-quarter of marine mammals are threatened with extinction.**

**Figure 3. The area under environmental protection expanded to 30% of the total marine area and 32% of the land territory**  
 % of total marine area (left) and % of terrestrial area and inland waters (right) under protection, April 2016.



*Note:* In some countries, marine protected areas are used primarily for fisheries management.  
*Source:* OECD calculations based on WDPA, April 2016. Preliminary results.

**Next steps | biodiversity**

- Speed up adoption of a National Policy Statement on Biodiversity.
- Continue integrating biodiversity protection into land-use planning, particularly on private land.

# Environmental performance | key trends

Figure 4. **Air quality is generally good.**  
Annual average population exposure to PM<sub>2.5</sub>, 2013.

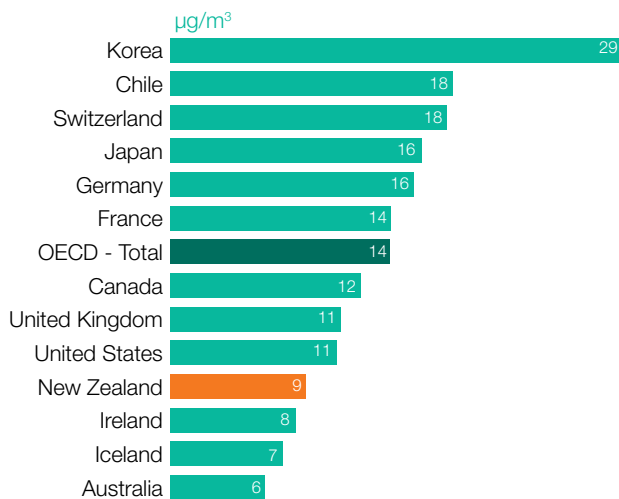
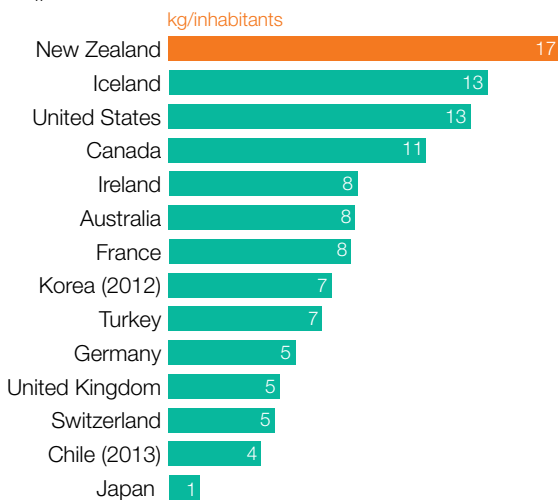


Figure 5. **New Zealand's road transport emissions are among the highest in the OECD.**

NO<sub>x</sub> emissions from road transport per capita, 2014.



Source: IEA (2016), IEA CO<sub>2</sub> Emissions from Fuel Combustion Statistics (database); OECD (2016), OECD Environment Statistics (database).

## AIR QUALITY

- Air quality is generally good (Figure 4), thanks to strong winds that help disperse pollutants. In most cities, PM<sub>10</sub> levels have improved, mainly because of a shift in home heating from wood to electricity and gas. Better insulation for buildings and new standards for vehicle fuels have also helped improve urban air quality. Still, short-term air quality standards are breached near busy inner-city roads and in areas with high concentrations of wood burners.
- Unlike in most OECD member countries, emissions of major air pollutants (such as NO<sub>x</sub> and SO<sub>x</sub>) have increased in New Zealand since 2000. Road transport, industrial production and power generation have driven the increase.
- New Zealand has no national standard for PM<sub>2.5</sub> (fine particulate matter) concentrations. Only a few sites in major cities monitor such concentrations.

## WASTE

- Waste generation is rising with population and income growth. Few cities charge by quantity or volume of waste, practices that could encourage households to reduce waste.
- Most waste is landfilled. A levy on landfilling introduced in 2008 is relatively low (NZD 10 per tonne), and covers only 30% of landfilled waste. This hampers its effectiveness in encouraging people to reduce or reuse waste.
- There is no national regulation for disposal of agricultural waste, despite the large size of the sector. The country also lacks national regulations for hazardous waste management.
- New Zealand lacks comprehensive, timely and internationally comparable data on waste generation, treatment and disposal.

## Next steps | air quality and waste

- Set a standard for maximum PM<sub>2.5</sub> concentrations and strengthen the monitoring and reporting of air quality data.
- Extend the waste disposal levy and encourage local authorities to introduce quantity- or volume-based waste charges to help minimise waste, foster recycling and recover costs of waste service.
- Improve collection of data on the generation, disposal and treatment of waste.

# Environmental **governance** and management

**New Zealand has significantly strengthened its collaboration with stakeholders and engagement with Maori communities on environmental policies. It has established nationwide environmental requirements in several key areas. However, local authorities sometimes lack staff and technical know-how. This, and the remaining regulatory gaps, can make it difficult to translate policy into action.**

## MULTI-LEVEL GOVERNANCE

- The National Resources Sector (NRS), created in 2008, groups eight government agencies with natural resource management duties. Led by the Ministry for the Environment, the NRS co-ordinates national policy, aligning economic development and sustainability goals through multiple mechanisms.
- Land-use planning and environmental regulatory powers are in the hands of regional and territorial authorities, allowing for adequate consideration of local circumstances. However, many local authorities lack resources and nationwide guidance in several policy areas. This leads to inconsistent policy implementation across the country.
- The government works with Maori communities to implement principles of the Treaty of Waitangi (1840) through relationship agreements or formal settlements on natural resource management issues.

## ENVIRONMENTAL REGULATION

- The comprehensive 1991 Resource Management Act governs almost every aspect of environmental management. National Policy Statements and National Environmental Standards guide local authorities, but their development has been fragmented and slow. New Zealand does not have national regulations for managing hazardous waste or protecting biodiversity.
- The system of resource consents integrates environmental impact assessment, permitting and land use. There is no holistic integration of discharge permits for air, water and waste on the basis of best available techniques.
- A growing number of local authorities have adopted a risk-based approach, prioritising inspections on compliance history or consent conditions. However, local authorities lack adequate enforcement capacity, particularly at the territorial level. Although maximum fines for criminal offences have increased substantially, non-compliance remains relatively high.

## ENVIRONMENTAL DEMOCRACY

- New Zealand has adopted collaborative approaches to environmental management, such as the Land and Water Forum (see page 12).
- The public can participate in the drafting of primary and secondary legislation and in district and regional planning. However, only 4% of resource consents are notified to the public.
- New Zealand has improved the collection, management and publication of environmental information. For example, it adopted the 2015 Environmental Reporting Act and implemented the Environmental Monitoring and Reporting initiative. However, unlike most other OECD member countries, New Zealand does not have a Pollutant Release and Transfer Register with industrial pollution and waste management data.

## Next steps | governance

- Undertake a comprehensive evaluation of the effectiveness of the Resource Management Act and its implementation at the local level.
- Establish nationally standardised requirements for air and water discharge permits, and waste generation and management.
- Provide better nationwide guidance, support and training to local authorities on permitting, compliance monitoring and enforcement.
- Build capacity of Maori communities to ensure their adequate participation in resource management planning.
- Establish a Pollutant Release and Transfer Register to collect data on environmental impacts of private companies and to help the public access this information.

## Case studies

### PAY MORE, THROW LESS

Auckland's waste management system was fragmented across seven local authorities, with different charging schemes. The average waste charges in New Zealand cover just half of an average council's expenditure on waste management.

In a welcome step, the first Auckland-wide Waste Management and Minimisation Plan was adopted in 2012. It introduced a coherent funding model based on the polluter pays principle. Households are charged by volume of unsorted household waste, encouraging them to recycle as much as possible. Data show that districts applying the polluter pays principle cut down on waste sent to landfills by nearly half compared to districts that charge flat rates.



### WARM UP NEW ZEALAND

The flagship Warm Up New Zealand programmes had an overall budget of about NZD 420 million (USD 350 million) for 2009-16, offering subsidies to help households improve their insulation and heating. As of 2016, the programmes had retrofitted nearly 300 000 homes, or 20% of the housing stock. However, an estimated 30% of the housing stock remains uninsulated, many of which are rental homes.

In 2016-18, Warm Up New Zealand focuses on properties occupied by low-income tenants with priority health needs related to cold and damp housing. In addition, the 2016 Residential Tenancies Amendment Act introduced stricter floor and roof insulation requirements for rented homes. To avoid retrofitting new houses, the government should consider modernising the Building Code; its building standards are less stringent than those of many other OECD member countries.



### A LEGAL PERSONALITY FOR THE PARK

In 2014, the government adopted the Te Urewera Act, granting legal personality to the national park of Te Urewera. The park now has “all the rights, powers, duties and liabilities of a legal person”. The land remains protected, with public use permitted as in national parks, but maintain their own separate identity. The Te Urewera Board, which governs the park, comprises members of the Ngai Tuhoë (local tribe) and the Crown; this joint governance acknowledges Ngai Tuhoë’s relationship with the lands and cosmology. The board can file lawsuits on behalf of Te Urewera and represent it in court.

The innovative concept solved the question of ownership between the Tuhoë and the government. Granting the area legal personality meant that nobody owns the park. In a similar spirit, the government and the Maori community have agreed to create a new legal entity for the Whanganui River.



### PROTECTING NEW ZEALAND’S BIRDLIFE

New Zealand’s unique and diverse birdlife had developed in absence of mammalian predators. However, the introduction of invasive mammals represents a major threat. The government has stepped up efforts to reverse the decline of biodiversity, including through fenced bird sanctuaries and landscape-scale pest control. The government has eradicated predators from more than 100 islands, and aims to eradicate all possums, rats

and stoats by 2050. The population status of the indigenous kiwi, brown teal, kokako and yellowhead has improved. The Predator Free New Zealand 2050 initiative, launched in 2016, aims to establish a public-private partnership company. It will support the refinement of existing techniques, such as GPS-guided aerial application of a toxin known as 1080 (sodium monofluoroacetate). It will also research new techniques, such as self-resetting traps and predator-specific toxins.



### THE INNOVATIVE LAKE TAUPO NITROGEN MARKET

Lake Taupo is New Zealand’s largest lake and a UNESCO World Heritage Site. Since the 1980s, water quality has deteriorated due to increasing nitrogen levels from pastoral farming. In response, the government, the regional and district councils, and local Maori communities introduced an innovative cap-and-trade scheme for diffuse source nitrogen emissions. Each farm was allocated an individual nitrogen emission allowance through OVERSEER, a national model for farm-scale nutrient budgeting and loss estimation. Individual allocations were consistent with the overall reduction target of 20% by 2018. Landowners in the catchment can buy, sell and trade allowances, enabling them to increase production or receive direct financial benefits for reducing nitrogen emissions.

The independent Lake Taupo Protection Trust was established in 2007 at a significant cost (NZD 79 million). The Trust buys back some allocated nitrogen allowances to retire land and reduce the economic and social impacts; it met its target reduction in nitrogen emissions in 2015. Inevitably, the cap has had negative impacts on farmers. They have less ability to intensify production; land values have dropped; and administration and compliance costs have increased. Yet new ventures are emerging with production of olives, dairy sheep and sustainable beef, as well as reforestation and credible green branding.

## Green growth

**New Zealand has an international reputation as a “green” country, both as a tourist destination and as a producer of natural and safe food. New Zealand should protect this reputation. It should build on its well-developed research and innovation system to export higher-value products, and it should decouple growth from natural resource use.**

### GREENING PRICE SIGNALS

- The Business Growth Agenda aims to build a more competitive and productive economy by making exports account for 40% of GDP by 2025. However, achieving this target may entail higher GHG emissions and increase pressure on water resources.
- New Zealand has made some limited efforts to increase use of economic instruments to put a price on environmental impacts and encourage more efficient use of natural resources. These efforts include the globally unique nitrogen cap-and-trade system in the Lake Taupo catchment area (see page 8), the GHG Emissions Trading Scheme (see box) and the waste disposal levy.
- However, revenue from environmentally related taxes accounts for 1.3% of GDP and 4.2% of total tax revenue, among the lowest shares in the OECD (Figure 6).
- New Zealand only taxes petrol use for transport, and at lower rates than many other OECD member countries. Diesel vehicles are subject to a distance-based road user charge instead of an excise tax. The petrol tax/diesel charge rates are based on the need for investment in roads. They do not consider environmental and social impacts such as GHG emissions, air pollution, noise and congestion. The car’s weight or engine size does not affect the road charges.

### INVESTING IN LOW-CARBON TRANSPORT MODES

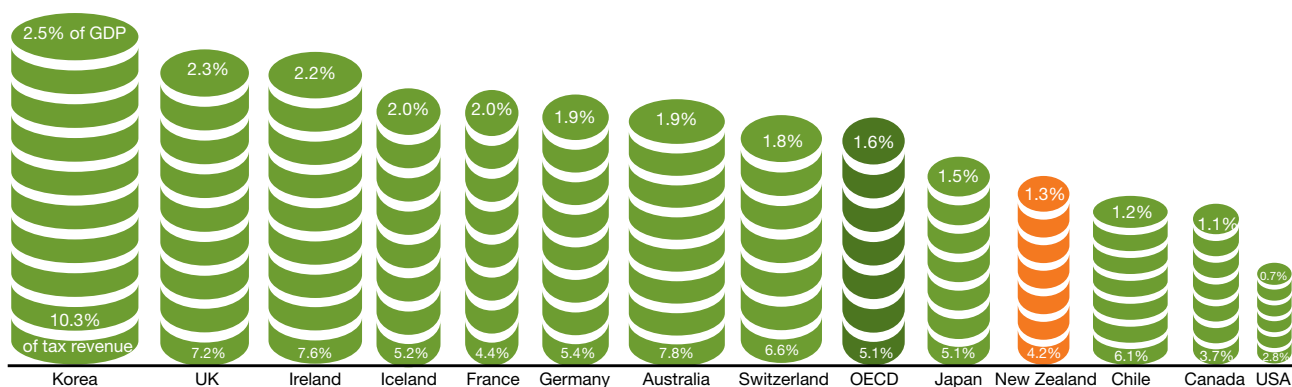
- In 2012-15, the National Land Transport Fund, which receives all revenue from the petrol tax and the road user charge, dedicated 78% of its investments to roads. Public transport, cycling and walking infrastructure received only 10% of the Fund.
- The number of motor vehicles, particularly diesel-powered ones, has increased considerably. Lax standards have favoured the import of used vehicles. As a result, the fleet is old and polluting. Road-transport emissions of nitrogen oxides per capita are among the highest in the OECD (Figure 5).
- With its abundant supply of clean power, New Zealand is well positioned to use electric vehicles, but so far the uptake has been limited. The 2016 Electric Vehicle Programme, which exempts electric cars from the road user charge to stimulate sales, aims to double the fleet every year until 2021. To reach this goal, New Zealand will need to adapt the electricity distribution system and develop infrastructure for charging the vehicles.

### PROMOTING ECO-INNOVATION

- New Zealand has a well-developed innovation system and a sound skill base. However, domestic research and development (R&D) expenditure has remained low at 1.2% of GDP – about half the OECD average.

Figure 6. **New Zealand’s revenue from environmentally related taxes is among the lowest in the OECD**

Environmentally related tax revenue as percentage of GDP (height) and total tax revenue (width), selected OECD countries, 2014.



Source: OECD (2016), *OECD Environment Statistics* (database).



## THE EMISSIONS TRADING SCHEME

The New Zealand Emissions Trading Scheme (NZ ETS), introduced in 2008, was designed to operate within the international Kyoto Protocol emission credits market. It covers all GHGs and emitting sectors, including agriculture and forestry – the only ETS in the world to do so. However, it later exempted emissions from agriculture from any obligation. Repeated amendments to the system have created uncertainty among participants. The unlimited

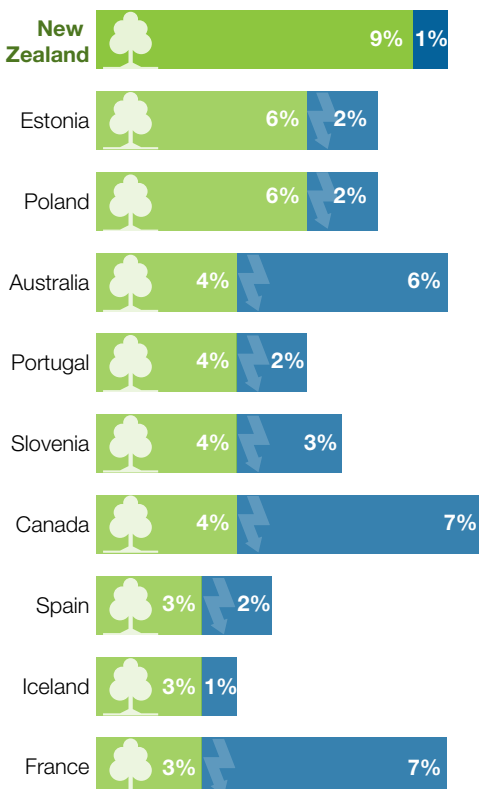
availability of cheap international credits has further reduced its effectiveness.

With some changes, the NZ ETS can contribute effectively to achieving New Zealand's climate mitigation objectives. New Zealand needs to reconsider indefinitely postponing the entry of biological emissions from farming into emissions trading. Otherwise, alternative pricing or regulatory measures should be undertaken. This would provide much-needed policy certainty for the agricultural sector, encourage investment and accelerate innovation.

- New Zealand's investment in R&D has increasingly focused on environment-related research and innovation (Figure 7). The share of total energy R&D budget dedicated to renewables and energy efficiency has progressively increased to exceed 70% in 2014.
- Environment- and climate-related technologies made up nearly 12% of all patent applications in 2010-12. This rate, which was more than three times the 2000 level, was in line with the OECD average. New Zealand has developed a competitive advantage in water pollution abatement, wastewater and waste treatment, and renewable energy generation. It is a world leader in research on reducing the environmental impact of agriculture (see box).

### Figure 7. New Zealand had the highest share of public R&D budget to the environment

Budgets for environment (green) and energy (blue) R&D as a share of total government R&D budgets, top ten OECD countries, 2015.



CAN: 2013 data, EST, ISL, POL: 2014 data. Source: OECD (2016), *OECD Science, Technology and R&D Statistics* (database).

## REDUCING GHG EMISSIONS FROM AGRICULTURE

The New Zealand government, in co-operation with the business sector, has launched several initiatives to develop and bring to market innovative products and services that can reduce GHG emissions from agriculture. Investment has focused on microbiology, nitrification inhibitors, genomics, animal nutrition, genetics and farm systems. These initiatives have consolidated the country's competitive advantage in technology for climate change mitigation in agriculture and the food industry, as well as in biotechnologies. Many also have potential to address New Zealand's water quality issues. On a multilateral level, New Zealand led the establishment of the Global Research Alliance on Agricultural Greenhouse Gases, which groups 46 countries to encourage international co-operation and investment.

## Next steps | green growth

- Develop a long-term vision to move towards a low-carbon, greener economy, taking into account opportunities to reduce the economy's reliance on natural resources.
- Strengthen the Emissions Trading Scheme to ensure the price of carbon promotes a transition to a low-carbon economy.
- Set a clear date for the inclusion of biological emissions from agriculture in the Emissions Trading Scheme or introduce alternative pricing and regulatory measures.
- Introduce an excise duty on diesel and ensure that petrol and diesel tax/charge rates consider the environmental costs of transport.
- Ensure that investment priorities for land transport infrastructure are consistent with long-term climate and environmental objectives.
- Introduce fuel efficiency and air emission standards for new and imported used vehicles.

## Water resources management

**Freshwater resources are an important natural asset for New Zealand. They support an array of indigenous flora and fauna, hydropower generation, tourism, agriculture, and recreational and cultural values essential for economic growth and quality of life. However, expansion and intensification of agriculture are increasing pressure on water resources.**

### STATE AND TRENDS

- 75% of water in New Zealand is used for irrigation. Some regions are approaching water allocation limits or have already surpassed them.
- Water quality continues to deteriorate in some regions due to diffuse pollution from agricultural and urban run-off. The main pollutants are nutrients (nitrogen and phosphorus), sediments and pathogens.
- Nitrogen surplus has increased in step with the growth in dairy herds. Half of monitored river sites have enough nitrogen to trigger algal blooms.
- New Zealand has some of the highest levels of threatened native freshwater species in the world.

### FRESHWATER POLICY REFORM

- The 2011 National Policy Statement for Freshwater Management, amended in 2014, is an important milestone towards addressing both water quality and quantity. It fills a long-standing gap in national policy guidance under the Resource Management Act. It draws from recommendations of the Land and Water Forum (see box). All regional councils are to set limits to maintain or improve water quality, and phase out or avoid over-allocation. The policy statement also encourages stakeholders to help set water quantity and quality limits.
- Regional councils have been slow to put the freshwater management policy into action. This has created uncertainty for water users and investors, and it reduces opportunities to bring environmental impacts to acceptable levels.
- In potential conflict with the freshwater management policy, the government wants one million ha of land under irrigation by 2025. It also seeks to double primary industry exports in real terms between 2012 and 2025. To that end, it has established grants and concessionary financing for irrigation projects. However, this financial support lacks systematic consideration of environmental and community costs.

### CO-GOVERNANCE OF THE WAIKATO RIVER

The Waikato is one of New Zealand's longest, most modified and most polluted rivers. The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 led to establishment of the Waikato River Authority (WRA). This independent body has five central and local government appointees, as well as a representative from each of the five Waikato River Maori communities. Together they co-govern the Waikato River. This partnership provides a strong platform for a long-term kaitiakitanga (guardianship and protection) approach in water management decisions.

The WRA envisions “a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and well-being of the Waikato River, and all it embraces, for generations to come”. Co-governance aims to make Waikato River safe for swimming and for harvest of kai (food).

### THE LAND AND WATER FORUM

The Land and Water Forum, established in 2009, brings together a range of industry groups, environmental and recreational non-governmental organisations, Maori communities, scientists and other organisations with a stake in freshwater and land management.

The forum's recommendations have been instrumental in the development of the National Policy Statement for Freshwater Management. It held four years of discussions and engagement with stakeholders and made recommendations for three key reform areas: planning as a community; developing a National Objectives Framework; and managing within quantity and quality limits. Despite consensus within the Forum on ways to improve freshwater management, the central government only took up some of its recommendations.



**ECONOMIC INSTRUMENTS**

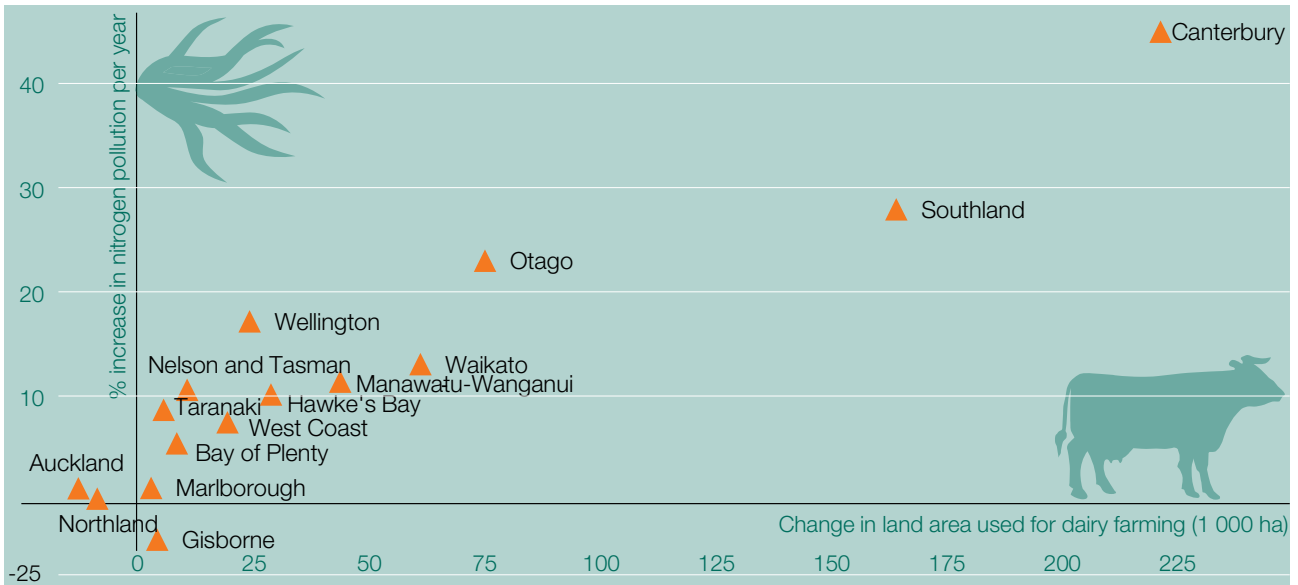
- Economic tools to address water allocation and pollution are under-used. This is partly because the government declared that “no one owns water”. Charges for water abstraction and pollution discharges are minimal, covering only the administrative costs of resource consents.
- In 2012, the Waitangi Tribunal confirmed the Maori’s “rights and interests in their water bodies”. However, New Zealand needs to further clarify and recognise Maori community rights and interests in water before

the government can ensure effective water policies. A number of options have set a precedent, including co-governance agreements, granting legal personhood to a water body (see box), permanent allocation of water and/or monetary settlement.

- New Zealand is uniquely positioned to cap and manage diffuse pollution outputs with OVERSEER, a system that models the flow of nutrients on a farm and estimates the amount of nutrients lost through air, soil and across the land. Lessons can be learned from the Lake Taupo Nitrogen Market – the first diffuse pollution trading scheme in the world (see page 8).

**Figure 8. Land-use change to dairy farming increases nitrogen pollution**

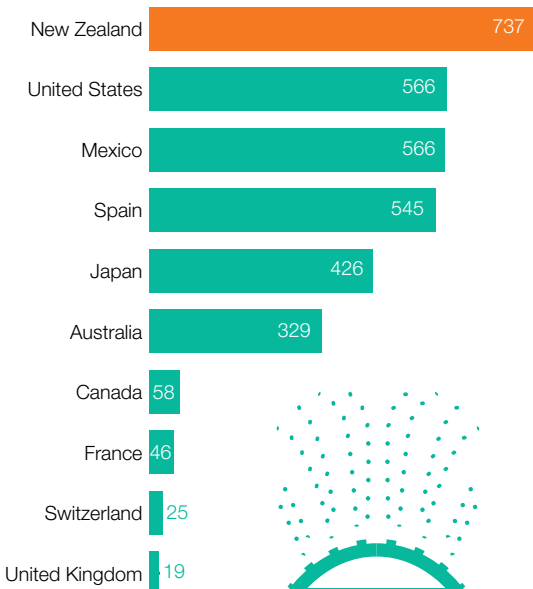
Predicted changes in nitrogen pollution of freshwater forecasted with large-scale land-use change to dairy farming: 1996-2020



Source: PCE (2013), *Water quality in New Zealand: Land use and nutrient pollution*

**Figure 9. Freshwater abstraction for agriculture is high in international comparison**

Per capita freshwater abstraction for agriculture, m<sup>3</sup>/inhabitant. 2014 or latest available year.



Note: UK = England and Wales. Source: OECD (2016), *OECD Environment Statistics* (database).

**Next steps | water**

- Develop a whole-of-government long-term strategy to increase the added value of export products within climate and freshwater quality and quantity objectives.
- Increase financial support and capacity for regional councils to deliver on the National Policy Statement for Freshwater Management.
- Ensure that water quantity and quality limits set locally are ambitious and comprehensive.
- Review government support for irrigation to ensure that funding is only provided for projects that would not proceed otherwise, and that have net community-wide benefits.
- Expand the use of economic instruments to internalise environmental and opportunity costs, promote innovation and encourage efficient use of water (quantity and quality).

# Sustainable urban development

**With 86% of the population living in cities and towns, New Zealand is one of the most urbanised countries in the OECD. Its cities feature large open green spaces, generally clean air and good water and waste services. However, population growth and urban expansion are putting pressure on land use, housing, transport and other urban infrastructure.**

## A GOOD QUALITY OF LIFE

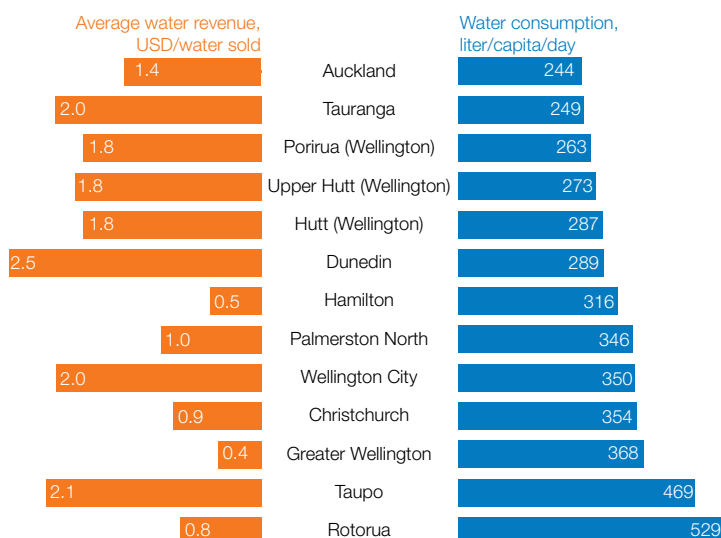
- Environmental quality of life in New Zealand's cities is generally high. Air quality is good compared to other OECD cities. Virtually all urban dwellers have access to waste and wastewater treatment services. Major urban biodiversity initiatives such as pest-free bird sanctuaries in Wellington and Auckland, help protect endangered species, while providing dwellers with easy access to nature.
- All major cities are growing. In many cities, however, housing supply has not kept up with demand. In Auckland, for example, lack of supply helped drive up house prices by more than 50% in 2013-16. Some cities are also reaching their limits to manage water effectively, creating overflows and pollution to nearby water bodies. With most urban growth occurring at the city fringes and greenfields, urban expansion has also degraded soil and fragmented habitat for flora and fauna.



## More than half of Auckland's freshwater streams and one-third of marine waters have been ranked 'degraded' or 'poor'.

- Urban dwellers use cars for most of distance travelled (Figure 11). This practice is encouraged by cities' low density, large roads and parking areas, and favourable tax treatment for company cars. Transport-related GHG emissions are high and increasing. In Auckland, congestion has become critical. Public transport is growing, but remains limited compared to other countries.

Figure 10. **Cities charging for water consume less water.**

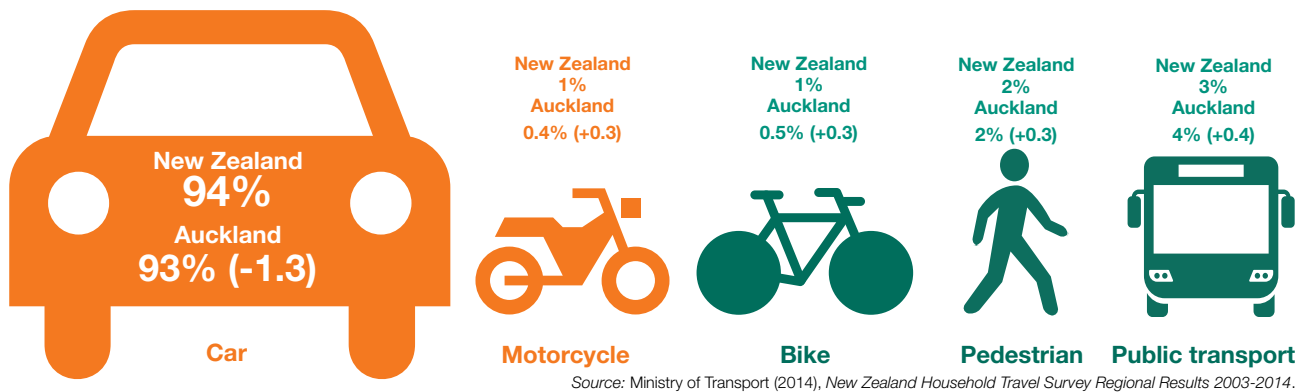


Source: IB-NET Database (2016).

- Several cities have developed sustainability objectives, including goals to reduce GHG emissions and to improve air and water quality. Many aim to enhance their urban densities, reduce pressures on land and bring people closer to their work and public transport services. Yet cities make limited use of indicators (e.g. on GHG emissions, housing density and quality, water and waste management). This makes it difficult for them to track environmental performance and identify best practices.



Figure 11. **Urban mobility heavily relies on private car use, yet public and active transport is on the rise**  
Mode share of transport by distance travelled, 2012-14. (Change in mode share 2002-04 to 2011-13, percentage points).



### A COMPLEX URBAN PLANNING FRAMEWORK

- Separate laws govern land use, transport and other urban infrastructure. Each area is managed under different procedures, criteria and timeframes. Parallel systems have led to a proliferation of planning documents, overlaps and duplication.
- To overcome fragmentation, the 2010 Auckland reform agglomerated eight local authorities into one single body and required integrated spatial planning for the region. In parallel, some smaller cities have voluntarily developed strategic spatial plans. However, they lack formal links to planning and budgeting processes for land use, housing and transport; this makes it hard to put the plans into practice.
- The Resource Management Act, the primary land-use legislation, is not clear about its urban applications. Cities have subsumed a broad range of issues under the banner of sustainable management. This makes land-use regulation increasingly far-reaching and prescriptive.
- The 2016 National Policy Statement for Urban Development Capacity focuses on ensuring sufficient land and housing supply. This leaves a gap in national guidance on how to manage urban growth so that it enhances urban environmental performance.

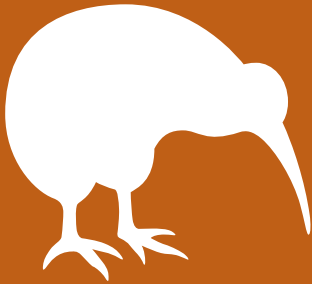
### TOWARDS SUSTAINABLE LAND USE

- Urban land use is predominantly managed through urban growth boundaries and zoning. To date, these tools have shown limited success in achieving compact development objectives. At the same time, they have indirectly contributed to rising land and house prices in fast-growing cities.
- Greater use of pricing instruments, such as road charges and water and waste service fees, could encourage more sustainable use of land and resources (Figure 10). Such tools could also bring in revenues to operate and expand infrastructure and services. Development contributions (levied to finance infrastructure for new developments) do not reflect the true cost of providing infrastructure to a specific area. This makes inefficient land use artificially cheap, accelerating urban sprawl and “leapfrog development” (new developments far from existing infrastructure). Further, it does not encourage construction of high-performance buildings (such as energy and water efficient ones) or low-impact infrastructure.

**About 30% of New Zealand homes are poorly insulated. 25% of homeowners and 50% of renters report problems with dampness or mould.**

## Next steps | urban development

- Make it simpler to integrate land use, infrastructure and transport planning. Give greater recognition to spatial planning and consider making it mandatory for major cities.
- Provide more extensive national guidance to ensure that local planning encourages good urban design outcomes, appropriately manages environmental systems, and considers climate change mitigation and adaptation goals.
- Remove barriers to road pricing. Encourage cities to use economic instruments to manage and finance water and waste services. Make better use of development contributions to finance infrastructure and stimulate efficient use of land and resources.
- Create a common set of urban environmental and economic indicators.



## MORE INFORMATION

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*OECD Environmental Performance Reviews*  
**New Zealand 2017**

The report and all data are available on  
<http://oe.cd/epr-newzealand>

Environmental Performance Review programme  
<http://oe.cd/epr>

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