Appendix I. Illustrative indicator examples

Extracted from recent OECD work

- Air and climate
- Waste and materials
- Energy supply and efficiency
- Water resources
- Development aid
- Research and technology development

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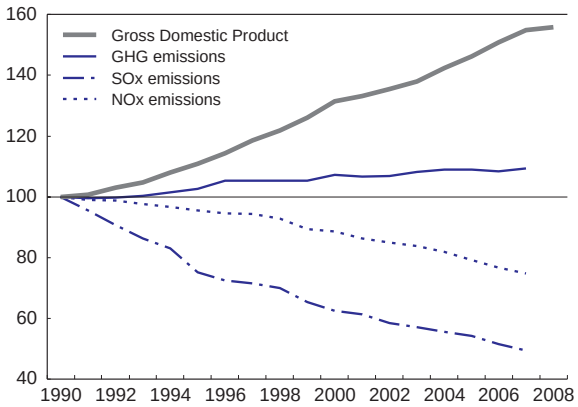
The indicators presented here are extracted from recent work.

They are included in this document for illustration purposes only.

Illustrative indicator examples extracted from recent OECD work

Air and climate

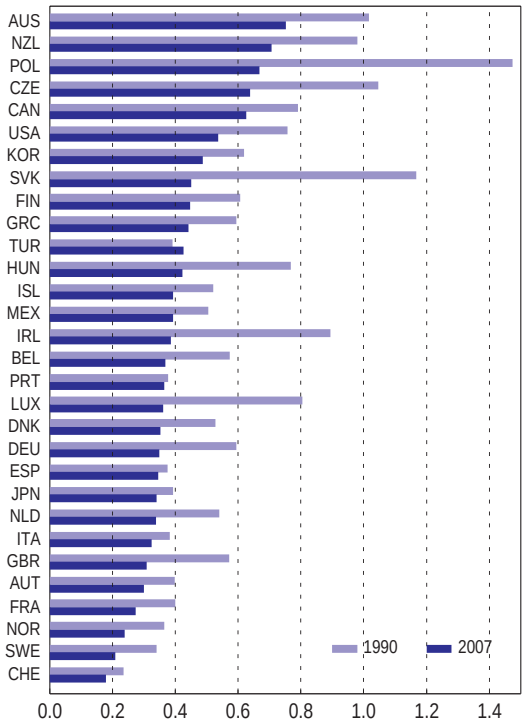
Figure I.1. Emission trends and GDP growth
OECD (Index 1990=100)



Source: OECD Key Environmental Indicators.

Emissions of acidifying substances show absolute decoupling from GDP. Many countries have also decoupled their GHG emissions from GDP growth, but have not succeeded in meeting their national commitments. The main challenge is to stabilise the concentration of GHG in the atmosphere at a level that would limit anthropogenic interference with the climate system, to limit emissions of other air pollutants and to limit population exposure to air pollution.

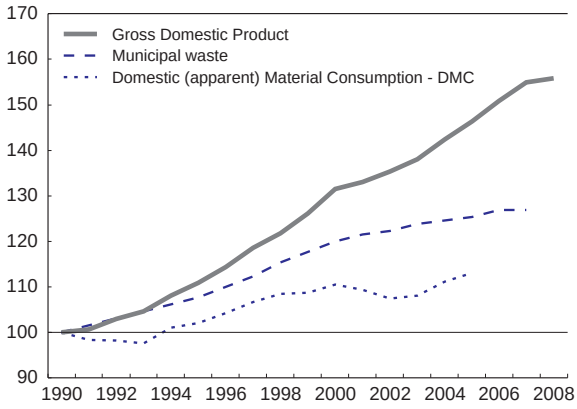
Figure I.2. Emission intensities
Greenhouse gas emissions per unit of GDP
(tonnes CO2-eq/1000 USD)



Source: OECD Key Environmental Indicators.

Waste and materials

Figure I.3. Waste generation, materials use and GDP growth
OECD (Index 1990=100)



Source: OECD Key Environmental Indicators.

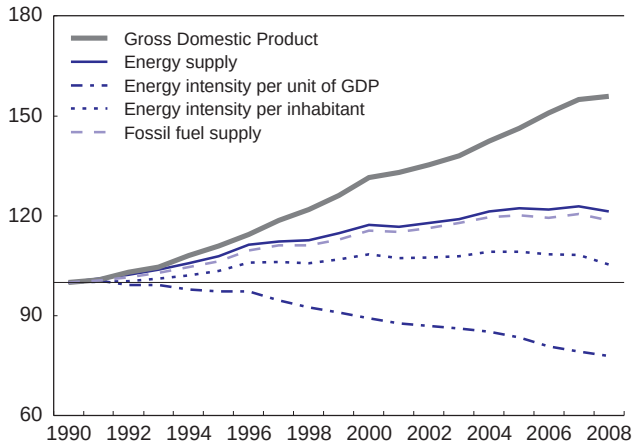
Despite achievements in waste recycling and relative decoupling of municipal waste generation from economic growth, many valuable materials contained in waste continue to be disposed of and are potentially lost for the economy.

The main challenge is to strengthen measures for waste prevention and recycling, and to move further towards integrated life cycle management of materials and products (circular economy approaches).

Illustrative indicator examples extracted from recent OECD work (continued)

Energy supply and efficiency

Figure I.4. Energy use and GDP growth
OECD (Index 1990=100)

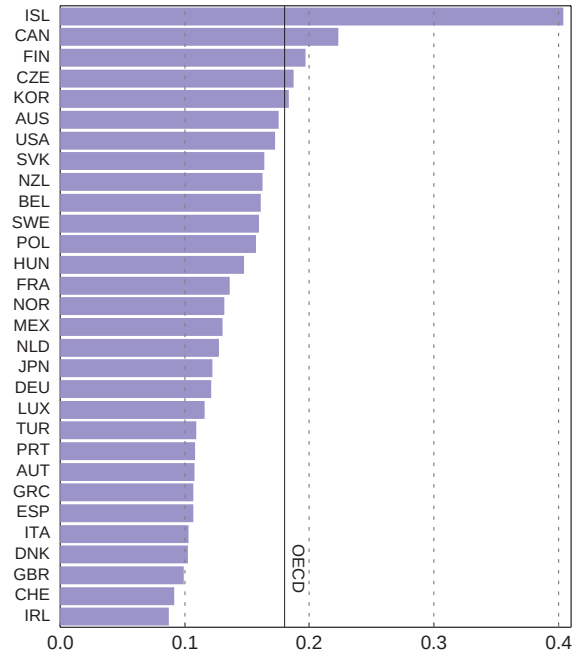


During the 1990s, energy intensity per unit of GDP has generally decreased in the OECD, as a consequence of structural changes in the economy, energy conservation measures, and in some countries decreases in economic activity.

The current rate of energy efficiency improvements is however not enough to overcome other factors driving up energy use. The main challenge is to further decouple energy use and related air and GHG emissions from economic growth, through additional improvements in energy efficiency and through the use of cleaner fuels.

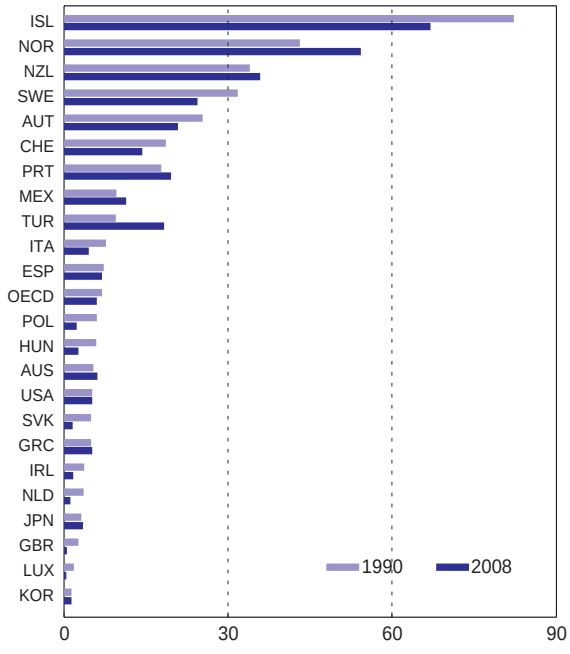
Source: IEA, OECD.

Figure I.5. Energy intensity, 2007
Energy Supply per unit of GDP (TOE/1000 USD)



Source: IEA

Figure I.6. Share of renewable energy[1]
As a percentage of energy supply



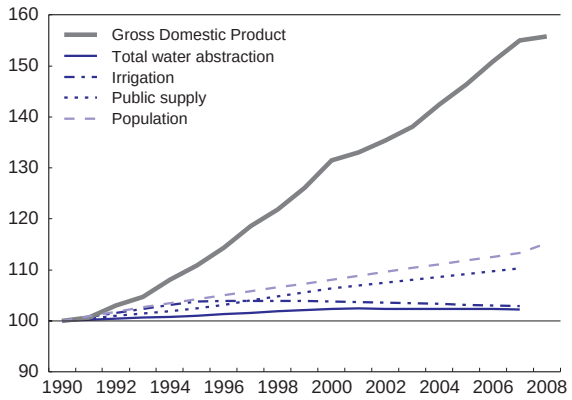
1. Hydro, solar, geothermal and wind energy.
Source: IEA

Illustrative indicator examples extracted from recent OECD work (continued)

Water resources

Figure I.7. Water abstractions and GDP growth

OECD (Index 1990=100)



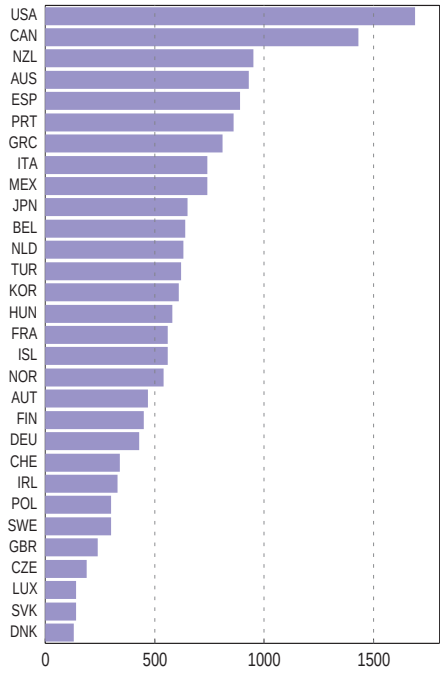
Source: OECD Key Environmental Indicators

Though many countries have stabilised their abstractions through more efficient irrigation and cleaner production technologies, most of them face seasonal or local water quantity problems and several have extensive arid or semi-arid regions where water is a constraint to economic development.

The main challenge is to ensure a sustainable management of water resources, avoiding overexploitation and degradation, so as to maintain adequate supply of freshwater of suitable quality for human use and to support aquatic and other ecosystems.

Figure I.8. Water use intensities, mid 2000s

Abstractions per capita (m3/person/year)

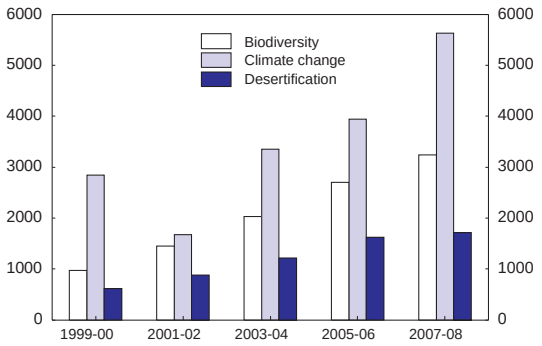


Source: OECD Key Environmental Indicators

Development aid

Figure I.9. Aid[1] targeting the Rio Conventions

USD million



1. Members of the OECD's Development Assistance Committee (DAC), two-year averages, commitments, constant 2007 prices.

Source: OECD-DAC: CRS Aid Activity database.

Trends in aid targeting the objectives of the Rio Conventions show an increase since the late 1990s. In 2008, DAC members allocated approximately USD 3.4 billion for biodiversity-related aid, USD 8.4 billion for climate-change-related aid and USD 2.4 billion for desertification-related aid.

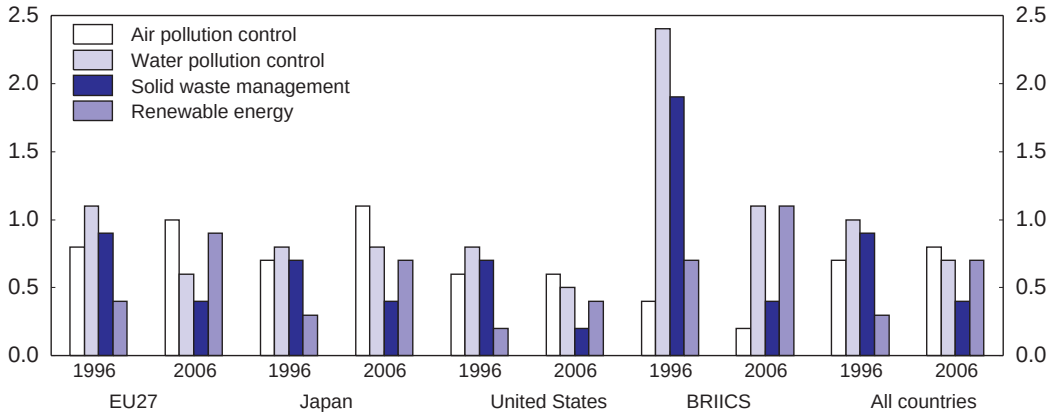
In 2008, total net official development assistance (ODA) from DAC members amounted to USD 119.8 billion, i.e. 0.30% of members' combined gross national income.

With foreign direct investment and other private flows to low-income countries on the decline, aid has a role to play in countering the development impact of the crisis.

Illustrative indicator examples extracted from recent OECD work (continued)

Research and technology development

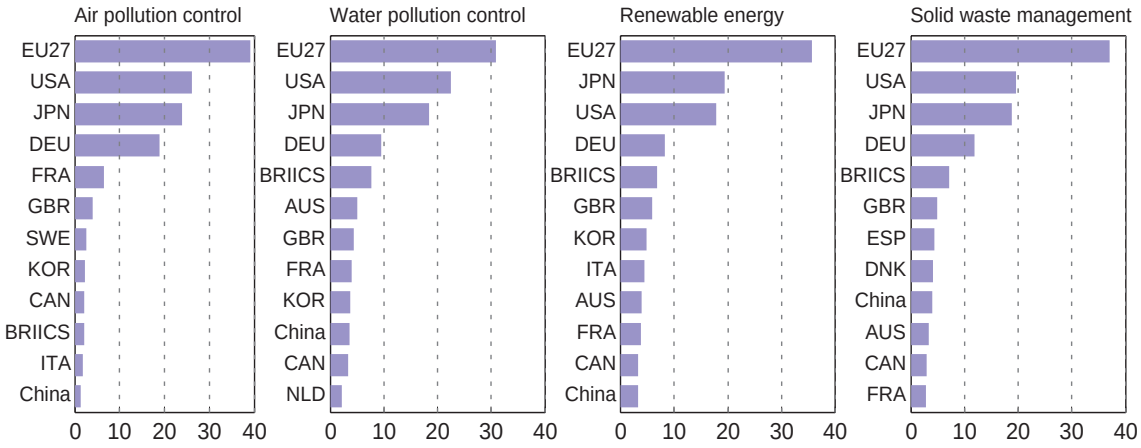
Figure I.10. Patents in selected environmental technologies
As a share of total PCT[1] patent applications (%)



1. The number of Patent Cooperation Treaty (PCT) applications is used as the main indicator of inventive performance.

Source: EPO/OECD Worldwide Patent Statistical Database.

Figure I.11. Share of countries in environmental technology patents filed under PCT[1]
Top 10 countries, 2004-06 (%)



1. The number of Patent Cooperation Treaty (PCT) applications is used as the main indicator of inventive performance.

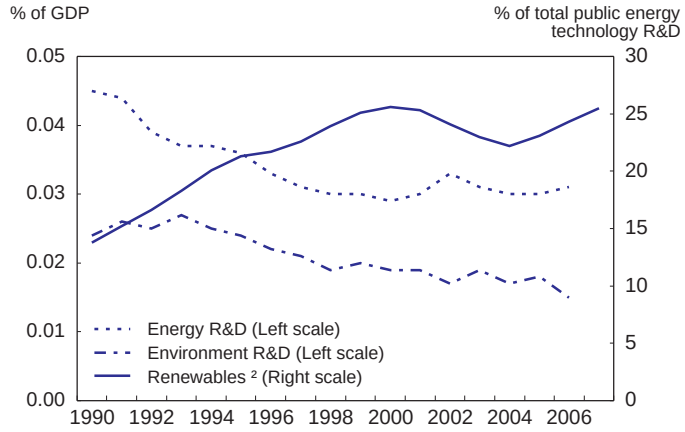
Source: EPO/OECD Worldwide Patent Statistical Database.

In the last 10 years, in most regions and countries there has been an increase in the share of total patents related to air pollution and renewable energy, while for water pollution and solid waste management the share has fallen. Japan, the United States and Germany are the most important inventor countries. Other countries such as Sweden (air pollution), Australia (water pollution) and Spain (renewables) are also important sources of invention in specific fields, as are the BRIICS (Brazil, Russian Federation, India, Indonesia, China, South Africa), and in particular China.

Illustrative indicator examples extracted from recent OECD work (continued)

Figure I.12. Public spending in energy- and environment-related R&D

OECD[1]



1. Data on energy related R&D refers to IEA averages. Non-IEA members (Iceland, Mexico, Poland, Slovak Republic), Belgium and Luxembourg are excluded.
2. Energy technology R&D expenditures directed towards "Renewable Energy" and "Energy efficiency" measures.

Source: OECD.stat (R&D statistics), IEA database.

The development and diffusion of clean technologies is crucial for moving to resource efficient, low-carbon economies.

While the share of GDP dedicated to public environment- and energy related R&D expenditure has slightly decreased since 1990, the amount dedicated to renewable energy and energy efficiency has gained in importance.