



UNITED NATIONS
UNIVERSITY
CRIS

Institute on Comparative Regional Integration Studies



Future Trends Series - GR:REEN Project

Title of the report

OECD Environmental Outlook to 2050 – The consequences of inaction

Area

Energy and environment

Reporter

OECD

Type of the Reporter

International Organisation

Periodically updated?

Yes

First issued year

2001

Latest update

2012

Official website

<http://www.oecd.org/>

Language available

English and French (summary available in Czech, Danish, Dutch, Estonian, Finnish, German, Greek, Hebrew, Hungarian, Icelandic, Italian, Korean, Norwegian, Polish, Portuguese, Slovak, Russian, Slovenian, Swedish and Turkish)

Short summary

In this report, the implications of economic and demographic trends over the next four decades are addressed using model based projections for four key areas of global concern: biodiversity, climate change, water and the health impacts of environmental pollution.

“The “Baseline” scenario projects that, unless the global energy mix changes, fossil fuels will supply about 85% of energy demand in 2050, implying a 50% increase in greenhouse gas (GHG) emissions and worsening urban air pollution. The impact on the quality of life of our citizens would be disastrous. The number of premature deaths from exposure to particulate pollutants could double from current levels to 3.6 million every year. Global water demand is projected to increase by 55% to 2050. Competition for water would intensify, resulting in up to 2.3 billion more people living in severely water-stressed river basins. By 2050, global terrestrial biodiversity is projected to decline by a further 10%”.

This “baseline” scenario highlights the urgent need for new thinking and action today to change the course of our future development. Ecosystems have tipping points beyond which damaging change becomes irreversible, it is a key challenge now “to strike a balance between giving clear policy signals to resource users and consumers, while leaving room for manoeuvre and adaptation given the uncertainties”.

- **More disruptive climate change is likely to be locked in**, with global greenhouse gas (GHG) emissions projected to increase by 50%, primarily due to a 70% growth in energy-related CO₂ emissions. The atmospheric concentration of GHGs could reach 685 parts per million (ppm) by 2050. As a result, the global average temperature increase is projected to be 3 °C to 6 °C higher by the end of the century, exceeding the internationally agreed goal of limiting it to 2 °C above pre-industrial levels.
- **Biodiversity loss is projected to continue**, especially in Asia, Europe and Southern Africa. Globally, terrestrial biodiversity is projected to decrease a further 10% by 2050. Primary forests, which are rich in biodiversity, are projected to shrink in area by 13%. The main pressures driving biodiversity loss include land-use change (e.g. agriculture), the expansion of commercial forestry, infrastructure development, human encroachment and fragmentation of natural habitats, as well as pollution and climate change. Climate change is projected to become the fastest growing driver of biodiversity loss to 2050, followed by commercial forestry and, to a lesser extent, bioenergy croplands. About one-third of global freshwater biodiversity has already been lost, and further loss is projected to 2050.
- **Freshwater availability will be further strained**, with 2.3 billion more people than today (in total over 40% of the global population) projected to be living in river basins experiencing severe water stress, especially in North and South Africa, and South and Central Asia. Global water demand is projected to increase by some 55%, due to growing demand from manufacturing (+400%), thermal electricity generation (+140%) and domestic use (+130%). Environmental flows will be contested, putting ecosystems at risks. Groundwater depletion may become the greatest threat to agriculture and urban water supplies in several regions. Nutrient pollution from urban wastewater and agriculture is projected to worsen in most regions, intensifying eutrophication and damaging aquatic biodiversity. The number of people with access to an improved water source (although not necessarily safe water for human consumption) is expected to increase, essentially in the BRIICS (Brazil, Russia, India, Indonesia, China, South Africa). However, globally more than 240 million people are expected to be without such access by 2050.
- **Air pollution is set to become the world's top environmental cause of premature mortality** under this scenario. Air pollution concentrations in some cities, particularly in Asia, already far exceed World Health Organization safe levels. By 2050, the number of premature deaths from exposure to particulate matter is projected to more than double to reach 3.6 million a year globally, with most deaths occurring in China and India. Because of their ageing and urbanised populations, OECD countries are likely to have one of the highest premature death rates from ground-level ozone, second only to India. The burden of disease related to exposure to hazardous chemicals is significant worldwide, but more severe in non-OECD countries where chemical safety measures are still insufficient. Yet, non-OECD countries are projected to greatly increase chemicals production, with the BRIICS overtaking the OECD in global sales by 2050 under the Baseline.

Suggestions

Well-designed policies can reverse the trends projected in the scenario. Given the complexity of the environmental challenges, a wide array of policy instruments are needed, often in combination. This Outlook draws on a policy framework outlined by the OECD's Green Growth Strategy, which countries can tailor to their level of development, resource endowments and environmental pressures. But there are common approaches:

- **Make pollution more costly than greener alternatives**; e.g. with environmental taxes and emissions trading schemes. Such market-based instruments can also generate much-needed fiscal revenues.
- **Value and price the natural assets and ecosystem services**; e.g. through water pricing which is an effective way of allocating scarce water, payments for ecosystem services, natural park entrance charges, etc.
- **Remove environmentally harmful subsidies**; an important step in pricing resources and pollution properly (e.g. to fossil fuels, electricity for pumping irrigation water).
- **Devise effective regulations and standards**; e.g. to safeguard human health or environmental integrity, for promoting energy efficiency.
- **Encourage green innovation**; e.g. by making polluting production and consumption modes more expensive, and investing in public support for basic R&D

A mix of policies is needed because the different environmental issues are closely linked.

Methodology

Research and modelling

[Reference to other trends reports? If yes, which reports?](#)
