

INTERLINKAGES – GOVERNANCE FOR SUSTAINABILITY



G L O B A L E N V I R O N M E N T O U T L O O K

The fourth *Global Environment Outlook – environment for development (GEO-4)* assessment report is published in 2007, exactly two decades since the World Commission on Environment and Development (WCED) published its seminal report – *Our Common Future* – which placed sustainable development on the agenda of governments and other stakeholders. *GEO-4* is the most comprehensive UN report on the environment prepared by about 390 experts and reviewed by more than 1 000 others across the world.

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The Earth functions as a system: atmosphere, land, water, biodiversity and human society are all linked in a complex web of interactions and feedbacks. Environment and development challenges are interlinked across thematic, institutional and geographic boundaries through social and environmental processes.

Environmental change and development challenges are caused by the same sets of drivers.

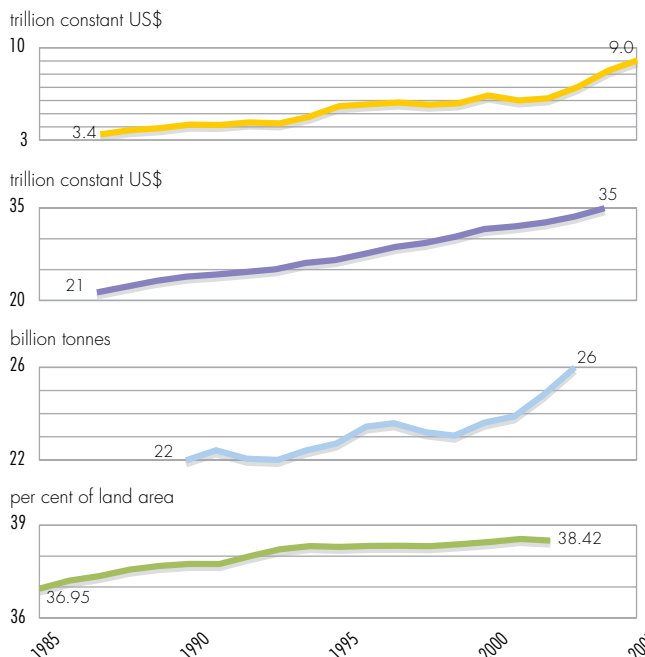
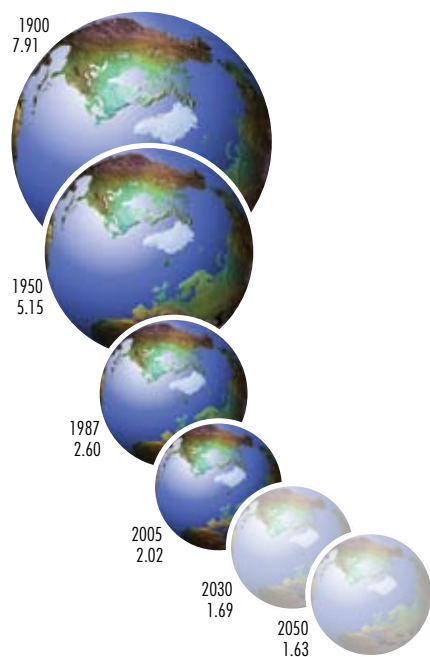
They include population change, economic processes, scientific and technological innovations, distribution patterns, and cultural, social, political and institutional processes. Since the 1987 Brundtland report, these drivers have become more dominant. For instance, the world population has increased by 34 per cent and world trade has increased 2.6 times.

The figure below, *Our “shrinking” Earth*, illustrates the pressures on the environment.

Responsibility for the drivers which create the pressures on the environment is not equally distributed throughout the world.

Economic processes are a good example. In 2004, the total annual income of the nearly 1 billion people in the richest countries was nearly 15 times higher than that of the 2.3 billion in the poorest countries. Also that year, the Annex 1 countries of the UN Framework Convention on Climate Change, contained 20 per cent share of the world population, produced 57 per cent of world GDP based on purchasing power parity, and accounted for 46 per cent of greenhouse gas (GHG) emissions. Africa’s share of the GHG emissions was 7.8 per cent.

Our “shrinking” Earth



Notes: Numbers next to images of Earth reflect hectares of land per capita. Graphs show changes in trade volume (1987–2005), GDP (1987–2004), CO₂ emissions (1990–2003) and agricultural land area (1987–2002).

Sources: FAOSTAT 2006, Chapter 9 population projection, WTO 2007, GEO Data Portal compiled from UNDP 2007/low estimate, World Bank 2006a, UNFCCC-CDIAC 2006 and FAOSTAT 2004



One form of human activity can cause several reinforcing environmental effects and affect human-well-being in many ways.

Emissions of carbon dioxide, for example, contribute both to climate change and to acidification of oceans. In addition, land, water and atmosphere are linked in many ways, particularly through the carbon, nutrient and water cycles, so that one form of change leads to another.

Social and biophysical systems are dynamic, and characterized by thresholds, time-lags and feedback loops.

Thresholds - sometimes also referred to as tipping points - are common in the Earth systems, and represent the point of sudden, abrupt, or accelerating and potentially irreversible change triggered by natural events or human activities. Examples of thresholds being crossed due to sustained human activities include: collapse of fisheries, eutrophication and deprivation of oxygen (hypoxia) in aquatic systems, emergence of diseases and pests, introduction and loss of species, and regional climate change. Biophysical and social systems also have the tendency to continue to change, even if the forces that caused the initial change are removed as evidenced in the climate system, stratospheric ozone depletion and the loss of species.

The complexity of human-ecological systems, and the limitations in our current state of knowledge of the dynamics of these systems, make it hard to predict precisely where critical thresholds lie.

These critical thresholds are the points where an activity results in an unacceptable level of harm, for example in terms of ecological change, and requires a response. This uncertainty also makes it difficult to identify measures for pre-empting the crossing of critical thresholds. This is of significant concern for human well-being, as past examples show how crossing some thresholds can contribute to the catastrophic disruption of societies.

The identification of interlinkages offers opportunities for more effective responses at the national, regional and global levels.

It may facilitate the transition towards a more sustainable society. It provides the basis for applying measures where they are most effective, based on trade-offs among different interests in society, and in a complementary manner. Consideration of interlinkages among environmental challenges can facilitate

more effective treaty compliance among the more than 500 existing multilateral environmental agreements.

Collaboration across existing governance regimes can strengthen the integration of environmental concerns into the wider development agenda.

Significant opportunities in this respect are offered by the UN reform process, due to its particular focus on system-wide coherence in the area of environment and the "One UN" approach at the country level. Mitigation and adaptation to climate change that considers its links with other environment and development challenges, may potentially address multiple environmental and development challenges simultaneously.

Governance approaches that are flexible, collaborative and learning-based may be responsive and adaptive, and better able to cope with the challenges of integrating environment and development.

Such adaptive governance approaches are well placed to address complex interlinkages, and to manage uncertainty and periods of change. They are likely to result in incremental and cost-effective evolution of institutional structures, and reduce the need for more fundamental institutional restructuring. Tools for dealing with interlinkages, such as assessments, valuation techniques, and integrated management approaches can be made more accessible to decision makers.



Gary Walker - UNEP/Still Pictures

Sources and credits for the information presented here are available and fully referenced in the **Fourth Global Environment Outlook - environment for development** report.



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