

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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Four scenarios – *Markets First*, *Policy First*, *Security First* and *Sustainability First* – explore society's common future up to the year 2050 in terms of the environment and the impact of our lifestyle choices and policy responses to address various challenges. They explore how current social, economic and environmental trends may unfold along divergent development paths in the future, and potential impacts for the environment, human well-being and development.

- **Markets First** pays lip service to sustainable development in terms of the ideals of the Brundtland Commission, Agenda 21 and other major policy decisions. There is a narrow focus on the sustainability of markets rather than in the context of the broader human-environment system.
- **Policy First** introduces some measures aimed at promoting sustainable development, but the tensions between environment and economic policies are biased towards social and economic considerations.
- **Security First** focuses on the interests of a minority: rich, national and regional. It emphasizes sustainable development only in the context of maximizing access to and use of the environment by the powerful.
- **Sustainability First** gives equal weight to environmental and socio-economic policies, accountability, and it stresses transparency and legitimacy across all actors. It emphasizes the development of effective public-private sector partnerships not only in the context of projects but in the area of governance, ensuring that stakeholders across the environment-development discourse spectrum provide strategic input to policy making and implementation.

Demographic and economic change

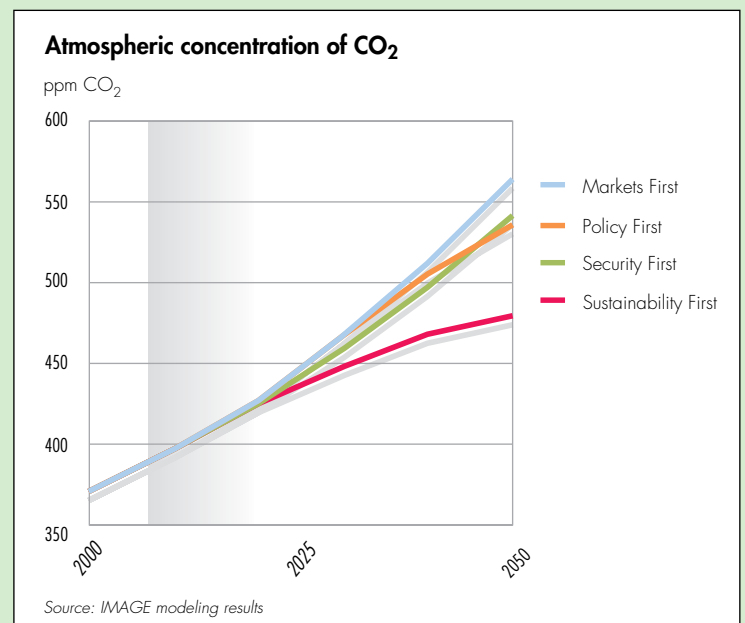
Global population continues to grow in each of the scenarios. It reaches its highest level, around 9.7 billion, by 2050 in *Security*

First. In *Sustainability First*, there are just fewer than 8 billion people by 2050, with little further growth expected. *Policy First* and *Markets First* see global population reach about 8.6 and 9.2 billion people, respectively.

Global economic activity grows significantly over the scenario period, particularly in *Markets First* and *Policy First*, both of which see an approximate fivefold increase in global GDP. In *Security First*, there is nearly a tripling of economic activity.

Energy

World energy use is expected to increase in all scenarios, driven mostly by intensive energy use in low-income countries. However, per capita energy use in high-income countries remains at a much higher level than in low income countries. Primary energy use in *Policy First* and *Security First* increases from about 400 EJ in 2000 to 600–700 EJ in 2030 and around 800–900 EJ in 2050. In terms of the energy mix, fossil fuels continue to dominate energy supply in all four scenarios.



Land

In all scenarios, the use of land for traditional agriculture – food crops and pasture and fodder – increases the most in regions where arable land is still available, notably Africa, Latin America and the Caribbean. Overall food production increases in all four scenarios, but per capita food availability is also influenced by the different rates in population growth. Significant increases are seen in *Markets First*, *Policy First* and *Sustainability First*, with the latter achieving global levels 10 per cent and 5 per cent higher than the first two, respectively. In *Security First*, food production barely keeps up with population growth after 2020, and the beginnings of a decline expected around 2040, with that in Africa happening much sooner.

Water

Increases in population growth and water demand determine the number of people living in river basins with severe water stress. In *Markets First*, the affected population grows from around 2.5 billion people in 2000 to nearly 4.3 billion people in 2050. Under *Policy First*, global population living under severe water stress rises by 40 per cent to nearly 3.9 billion people.

Population living in river basins under severe water stress in 2050 exceeds 5.1 billion people in *Security First*. Developments under *Sustainability First* with respect to water use, together with slower population growth rates, lead to significant reductions in water stress in many river basins, but is still rising to 3.6 billion people globally.

Biodiversity

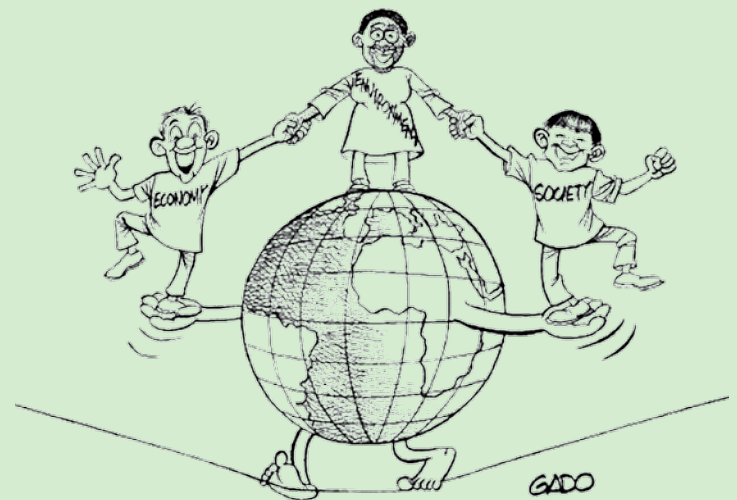
Across the scenarios and regions, global biodiversity continues to be threatened, with strong implications for ecosystem services and human well-being. All regions continue to experience declines in terrestrial biodiversity in each of the scenarios. The greatest losses are seen in *Markets First*, followed by *Security First*, *Policy First* and *Sustainability First* for most regions. Africa, and Latin America and the Caribbean experience the greatest losses of terrestrial biodiversity by 2050 in all four scenarios, followed by Asia and the Pacific.

Policy messages

In *Markets First* and *Security First*, limited progress is seen in integrating the principles of sustainable development. Strong progress is made in *Policy First* and *Sustainability First*. The larger overall populations in *Markets First* and *Security First*, as well as the more unequal income distributions imply larger numbers of slum dwellers. The relative lack of specific policies to address their concerns also points to less progress in improving the lives of these groups.

The scenarios point to both risks and opportunities in the future. Of particular significance are the risks of crossing thresholds, the potential of reaching turning points in the relationship between people and the environment, and the need to account for interlinkages in pursuing a more sustainable path.

The hallmarks of global change are discernible in life – the sprawl of cities over the countryside, the manifestation of climate change in warmer winters and more severe heat waves, and the presence of human-made pollutants in remote regions of the world. The rate of change for many key indicators may slow towards the middle of the century. Changes go on, but the rate of change declines, indicating a potential turning point in human-environment relations.



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

Contact Address