



Environmental Updates

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Designed for use with the Global Development And Environment Institute's *Environmental and Natural Resource Economics* textbook

Human and Planetary Health

Average global life expectancy at birth has increased from only 52 years in 1960 to over 70 years today.¹ But a comprehensive report published in July 2015 considers whether environmental degradation threatens to halt or even reverse decades of health gains. The 56-page report, co-authored by 22 experts from diverse scientific fields and published by the medical journal *The Lancet*, assesses the relationship between human and planetary health. The report concludes that:

health effects from changes to the environment including climatic change, ocean acidification, land degradation, water scarcity, over-exploitation of fisheries, and biodiversity loss pose serious challenges to the global health gains of the past several decades and are likely to become increasingly dominant during the second half of this

century and beyond. These striking trends are driven by highly inequitable, inefficient, and unsustainable patterns of resource consumption and technological development, together with population growth. (p. 1)

The report suggests that gains in food production and technological efficiency may be offset over time by deterioration in environmental services. Numerous human pressures on the earth's natural systems are documented, with the greatest threats including climate change, the disruption of natural nutrient cycles (particularly nitrogen and phosphorus pollution from fertilizers). The primary human driver of environmental degradation is determined to be a society's level of absolute wealth, with population growth and poor governance also contributing.

The health of the planet affects human health through various mechanisms. For example,

warmer temperatures are expected to reduce agricultural yields in tropical regions of the world, particularly in sub-Saharan Africa and south Asia. But higher carbon dioxide concentrations in the atmosphere also reduce the zinc content of food crops, which could put an additional 150 million people at risk of zinc deficiency. Climate change will also spread plant diseases caused by fungi, viruses, and bacteria, potentially reducing global crop yields by 16%.

The study discusses several strategies to safeguard human and planetary health. The authors advocate a major shift toward sustainable aquaculture. Global catch from wild fisheries is expected to decline in the future – thus increased reliance upon aquaculture will be necessary. Aquaculture can be made sustainable by devising production systems that mimic natural nutrient cycling. Another recommendation is to

¹ Data from the World Bank, World Development Indicators database

reduce food waste. Currently, about 30% to 50% of global food production is wasted, either before or after harvest due to factors such as fungal contamination. Food waste leads to biodiversity loss, water pollution, and carbon dioxide emissions.

Turning to policy, the report discusses the need to create a “circular economy” – one where natural inputs are cycled within the economy as much as possible, reducing waste and pollution. Four ways to foster the transition to a circular economy are:

- *Monetization of non-market environmental benefits.* The authors argue that measuring the benefits of ecosystem services in monetary terms will provide support for stronger environmental regulations. For example, a 2013 study of air quality in East Asia found that the economic benefits of air quality improvements were 10 to 70 times the costs.

- *Implement incentives for behavioral change.* Tax policies, media campaigns, and other approaches can both improve health outcomes and promote sustainability. For instance, the availability of cash payments for purchases of healthy foods in South Africa increased fruit and vegetable consumption while also reducing irrigation demands and carbon dioxide emissions.

- *Improved measures of human well-being.* The report discusses several measures that aim to address the shortcomings of GDP as a measure of welfare, including the Genuine Progress Indicator, the Happy Planet Index, and the Social Progress Index.

- *Use taxes and subsidies to promote planetary health.* Taxes on negative externalities such as carbon emissions and water pollution reduce damages and generate public revenues that

can be used to reduce health inequities. While subsidies should be used to promote sustainable behaviors, the majority of subsidies currently promote inefficient and environmentally damaging behavior. For example, a 2015 analysis by the IMF found that global fossil fuel subsidies amount to 6.5% of world GDP, and are even higher in developing countries.

In summary the report recommends that: Depreciation of natural capital and nature’s subsidy should be accounted for so that economy and nature are not falsely separated. Policies should balance social progress, environmental sustainability, and the economy. To support a world population of 9–10 billion people or more, resilient food and agricultural systems are needed to address both undernutrition and over-nutrition, reduce waste, diversify diets, and minimize environmental damage. (p. 1-2)

Source:

Whitmee, Sarah, Andy Haines, Chris Beyrer, Frederick Boltz, Anthony G Capon, Braulio Ferreira de Souza Dias, Alex Ezeh, Howard Frumkin, Peng Gong, Peter Head, Richard Horton, Georgina M Mace, Robert Marten, Samuel S Myers, Sania Nishtar, Steven A Osofsky, Subhrendu K Pattanayak, Montira J Pongsiri, Cristina Romanelli, Agnes Soucat, Jeanette Vega, and Derek Ya. 2015. “Safeguarding Human Health in the Anthropocene Epoch: Report of The Rockefeller Foundation–Lancet Commission on Planetary Health,” July 16, 2015, <http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736%2815%2960901-1.pdf>.