

PROCEED WITH CAUTION ON 'PLANETARY BOUNDARIES'

The concept of 'planetary boundaries', which sets out limits to the Earth's biophysical systems, has two major flaws and could create new problems for policymakers, argues Simon L. Lewis.

To be discussed at the UN Conference on Sustainable Development (Rio+20) in Brazil in June, the concept identifies environmental thresholds that must not be crossed if we are to keep the Earth within the safe operating space of the Holocene epoch the years before the industrial era. It offers clear, quantitative measurements with no obvious judgements on what's 'right' or 'wrong' to include, says Lewis.

But he points out two major flaws. The concept fails to make a distinction between thresholds that can be breached and fixed limits to natural resources such as the total amount of phosphorus available for use in the world.

Far from being an academic point, this has tangible implications for policy, says Lewis. For example, enforcing a boundary on phosphate pollution may encourage investment in technology to address its environmental impact, but will do nothing to safeguard phosphorus stocks.

This article is part of our coverage of preparations for Rio+20 the UN Conference on Sustainable Development which takes place on 20-22 June 2012. For other articles, go to Science at Rio+20

The second weakness is its focus on global thresholds without making a distinction between how they differ from local or regional boundaries that can become global problems if replicated. Climate change is a systemic process, driven by greenhouse gases in the atmosphere; but nitrogen pollution, though localised in specific countries, can become a global problem on aggregate.

A narrow focus on maintaining Holocene-like conditions risks side-lining key problems such as the 'plastic soup' of particulate waste that stretches across the Pacific Ocean, argues Lewis, and risks spreading already weak political will too thinly. Negotiations at Rio+20 should focus on global planetary boundaries, he concludes, leaving aside discussions on regional problems that can best be addressed by those affected by them.

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