

## Constraints Rule a Finite Planet



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Every day, more people share this planet. At the same time, people's expectations for comfort and better lives are rising. Both trends lead to a growing global demand for natural resources and services, including food, carbon sequestration, fiber (for clothing and paper) and wood (for furniture).

Human demand on our planet's resources, however, already exceeds what Earth can renew by over 60%. We can continue overusing and depleting natural capital as long as the stocks last. But that is a path that undermines our current and future economic possibilities.

This global situation also holds true in the Mediterranean region. As the regional population has doubled over the last five decades, per capita resource consumption has increased by 24% and residents now demand 2.5 times more resources from the Mediterranean ecosystems than what they can renew. Both regionally and globally, the increase in human-induced CO2 emissions is among the largest footprint drivers. As part of the 2015 Paris climate agreement, 195 countries plus the European Union pledged to collectively limit global warming to a maximum of 2 degrees Celsius overall and 1.5 degrees by the end of the century. Achieving

this goal would require reducing net carbon emissions to zero no later than 2050. Yet others, such as OPEC in its 2015 World Oil Outlook, project increasing demand for fossil fuels over the next decades. But such a path would put in question a swift and smooth transition to a low-carbon, low-risk economy. Growing population and higher demand for renewable natural resources combined with either fossil fuels scenario have significant implications for every country. Resource-intensive infrastructure and economic sectors are most likely to be exposed to greater risk, including potential stranding of significant portions of those sectors' assets.

Consequently, carefully managing any city's, region's or country's natural resource dependence by setting clear goals and pursuing Ecological Footprint reduction strategies, including renewable energy, smart infrastructure, innovation and efficiency, would be the cornerstone for securing resilience and economic stability.

We therefore welcome a shift towards circular economy, made possible by the implementation of Sustainable Consumption and Production policies and activities as well as the Mediterranean Strategy for Sustainable Development which aims to guarantee

the health of the region's threatened assets by integrating environmental concerns into key development decisions. The strategy's objectives also include ensuring a high quality of life for Mediterranean people without further degrading the environment and within the carrying capacity of regional ecosystems.

But reality is far from this goal. According to Global Footprint Network's analysis, the Mediterranean region now uses approximately two and a half times more natural resources and ecological services than what its ecosystems can renew ([www.footprintnetwork.org/med](http://www.footprintnetwork.org/med)). This can be measured with Ecological Footprint accounting. Just as a bank statement tracks expenditures against income, Ecological Footprint accounting measures how a population uses resources and measures what is available. The Ecological Footprint adds up all human demands on nature that compete for biologically productive space — demands for fruits and vegetables, meat, fish, wood, cotton for clothing, space for urban infrastructure and absorption of carbon dioxide from burning fossil fuels.

This Footprint then is compared with all the available biologically productive space (called biocapacity). The biocapacity of a state, region, nation

or the world represents what their respective productive areas can renew, including forest lands, grazing lands, cropland and fishing grounds.

In order to compare all Footprints and biocapacity across the globe, these are expressed in a standardised unit: global hectares. These are biologically productive hectares with world average biological productivity for a given year. The Carbon Footprint is the portion of the Ecological Footprint associated with fossil fuels use. It measures the biologically productive space needed to sequester the carbon emissions from burning fossil fuels. Currently, the Carbon Footprint makes up nearly 60% of the world's Ecological Footprint. If we achieve the goals of the Paris climate agreement, the Carbon Footprint will have to fall to zero by 2050.

Analysing these resource risks, opportunities are also revealed. Human ingenuity enables us to build a resource-efficient economy that provides for a thriving society within the means of nature. In a world of climate change and resource constraints, such an economy will become any nation or region's strongest asset. The current potential for Footprint reductions is vast. At the same time, this requires significant foresight for a whole country to transform. Evaluating opportunities

## INFO

**Mathis Wackernagel, PhD** is co-creator of the ecological footprint analysis and CEO of **Global Footprint Network**. He has promoted sustainability on six continents and lectured at more than 100 universities. Awards granted to him include the 2015 IAIA award, the 2013 Prix Nature Swisscanto, the 2012 Blue Planet Prize, the 2012 Binding-Prize for Nature Conservation, the 2012 Kenneth Boulding Memorial Award, the 2011 Zayed International Prize for the Environment, an honorary doctorate from the University of Berne in 2007, the 2007 Skoll Award for Social Entrepreneurship, the 2006 WWF Award for Conservation Merit and the 2005 Herman Daly Award of the U.S. Society for Ecological Economics. From 2011 to 2014, Dr Wackernagel was also a Visiting Professor at Cornell University.

**Global Footprint Network** is a research organisation that is changing how the world manages its natural resources and responds to climate change. Since 2003 we have engaged with more than 50 nations, 30 cities and 70 global partners to deliver scientific insights that have driven high-impact policy and investment decisions. Together, we are creating a future where all of us can thrive within our planet's limits.

[www.footprintnetwork.org](http://www.footprintnetwork.org)

helps us find footprint reduction options that are economically and politically desirable.

To find strategic wins that can provide footprint reduction gains while creating economic value, finance tools are needed to accurately assess the costs and benefits of each option. For example, the Net Present Value Plus (NPV+) method ([www.footprintnetwork.org/npvPLUS](http://www.footprintnetwork.org/npvPLUS)) can help identify where footprint reductions go hand in hand with financial gains. NPV+ goes beyond the conventional net present value analysis by including currently unpriced factors, such as the cost of environmental degradation and health and benefits like ecological resiliency. NPV+ also

makes the assessment consistent with the investors' explicitly stated assumed future — whether investors are government agencies, private entities or a partnership between the two. Such assumed futures help choose more meaningful parameters for a more comprehensive cost benefit analysis. Such assessments show that many sustainability policies are both fiscally and environmentally responsible. Therefore, the combination of risk and opportunity tools allows us to identify policies that reduce risk while strengthening our economic standing. After all, our world is finite. But the possibilities are not.