



**Friends of
the Earth
Europe**

The Four Footprints

Increasing our resource efficiency, reducing our social & environmental impacts

- How can a company reduce its climate impact, increase its productivity and identify risks in its supply chain?
- How can the EU or a government make sure that new policies don't increase land grabbing and deforestation around the world?
- How can a caterer – or an individual - reduce the land & water required to make lunch?

Pressure on the world's resources is rapidly increasing, as people's living standards rise in many poorer countries across the world, while those in richer countries already use large amounts of resources. This is leading to volatile & increasing prices for key resources, and is creating negative environmental & social impacts like deforestation and high food prices.

To improve the resilience of our economy, to minimise price increases, & to reduce our environmental & social impacts, we need to become more resource efficient.

The starting point is to measure & manage our resource use, using the Four Footprints.



Land footprint – the real area of land used, wherever it is in the world

- For example, the land needed to produce a meal (including the land used to grow the crops eaten by animals), or the extra land we'd use if we burnt more biofuels.
- Nearly 60% of the land used to meet the EU's demand for agriculture & forestry products is imported¹ - but how much of the world's land should we each expect to use?



Carbon footprint – the total amount of climate changing gases released

- Eggs produced from chickens that are fed soya from South America have a higher carbon footprint than if the soya is grown in Europe²
- The UK has increased its global carbon footprint while appearing to reduce its domestic greenhouse gas emissions, as it imports so many goods from abroad.



Water footprint – the total volume of water used, whether freshwater, rainwater or water polluted by the activity

- An 725g Italian pizza margherita requires 1,217 litres of water, predominantly in the production of tomatoes & mozzarella cheese³
- How vulnerable is our food supply to water problems in other countries?⁴



Material footprint – the tonnage of materials used, including the ore mined in order to extract metals

- Our material footprint can be reduced by maximising reuse & recycling of materials – recycling a can of aluminium cuts out the need to dig up & extract aluminium from ore.

¹ Sustainable Europe Research Institute. (2011). *Europe's global land demand: A study on the actual land embodied in European imports and exports of agriculture and forestry products.* http://www.foeeurope.org/sites/default/files/publications/Europe_Global_Land_Demand_Oct11%5B1%5D.pdf

² http://www.slideshare.net/martin_wildenberg/nhp-erscp-2012

³ Aldaya, M. M., & Hoekstra, A. Y. (2010). *The water needed for Italians to eat pasta and pizza.* *Agricultural Systems*, 103(6), 351-360.

⁴ Hunt, A. S. P., Wilby, R. L., Dale, N., Sura, K., & Watkiss, P. (2014). *Embodied water imports to the UK under climate change.* *Clim. Res.*, 59(2), 89-101.

The Four Footprints: examples & more information

Origins & overall four footprints approach

The four footprints were identified after a process of investigation and discussion. See:

- http://www.foeeurope.org/publications/2009/seri_foee_measuring_eu_resource_use_final.pdf

EU Commission-funded report on using the four footprints to monitor the resource use of countries:

- http://ec.europa.eu/environment/enveco/resource_efficiency/pdf/FootRev_Report.pdf

UNEP discussion paper on potential SDG targets on resource use, including all four footprints:

- <http://www.iisd.org/publications/sustainable-consumption-production-targets-indicators>

CREEA project brochure, calculating the four footprints of 43 countries:

- <http://creea.eu/index.php/7-project/8-creea-booklet>

Carbon Footprint

ISO Standard 14067/2013: “Carbon footprint of products -- Requirements and guidelines for quantification and communication”

- http://www.iso.org/iso/home/news_index/news_archive/news.htm?refid=Ref1801

British Standards Institute PAS 2050 for calculated the carbon footprint of products & services:

- <http://www.bsigroup.com/en-GB/about-bsi/media-centre/press-releases/2011/9/NEWLY-REVISED-PAS-2050-POISED-TO-BOOST-INTERNATIONAL-EFFORTS-TO-CARBON-FOOTPRINT-PRODUCTS/#.Uw8-mNzEi8U>

The UK Committee on Climate Change has modelled carbon footprint to 2050, in order to advise the UK Government on its 2050 decarbonisation target:

- <http://www.theccc.org.uk/publication/carbon-footprint-and-competitiveness/>

Water Footprint

The Water Footprint Network has information on methodology, case studies, facts & figures and a list of partners on their web site:

- <http://www.waterfootprint.org/>

The European Commission’s Joint Research Centre have investigated the Water Footprint of Europe and the way in which dietary changes would impact on this footprint:

- Vanham, D., & Bidoglio, G. (2013). A review on the indicator water footprint for the EU28. *Ecological Indicators*, 26, 61-75.
- Vanham, D., Hoekstra, A. Y., & Bidoglio, G. (2013). Potential water saving through changes in European diets. *Environ Int*, 61C, 45-56.

Land Footprint

The UNEP International Resources Panel report on “Assessing Global Land Use: Balancing Consumption with Sustainable Supply” calculates a Planetary Boundary for cropland, and proposes an initial target of 0.2 ha of cropland per person (the EU currently uses 0.31 ha):

- <http://www.unep.org/resourcepanel/Publications/AreasofAssessment/AssessingGlobalLandUseBalancingConsumptionw/tabid/132063/Default.aspx>

Balancing virtual land imports by a shift in the diet. Using a land balance approach to assess the sustainability of food consumption. Germany as an example.

- Meier, T. et al. (2013). *Appetite*, 74C, 20-34. <http://www.nutrition-impacts.org/media/2014%20-%20Meier%20et%20al%20-%20Balancing%20virtual%20land%20imports.pdf>

Material Footprint

Eurostat on material flow accounts & Raw Material Consumption (=Material Footprint):

- http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Material_flow_accounts