

What is the ecological footprint?



Courtesy: www.public-domain-photos.com

The ecological footprint is a concept and a tool used to **measure the impact of human activities on the environment**. It estimates the surface area required to produce everything that an individual or population consumes and to absorb the resulting waste, being expressed in hectares.

*The **Ecological Footprint (EF)** is a concept developed by Wackernagel and Rees in the early 90's. The EF is a strong sustainability indicator, since it assumes that the substitution of natural capital by human-made capital is limited. It measures how much of the services provided by nature an individual, population or activity requires to produce the renewable resources (crops, forest products and animal products) it consumes, and to absorb the waste it generates. The EF only looks for the so called "critical natural capital", in other words, those parts of the environment that perform important and irreplaceable functions.*

*The EF uses a biophysical unit: land area. It shows how much **land is required to sustain the economic use of resources for a certain period of time with available technologies and given resource management conditions, and to provide infrastructures and absorb waste and pollutants**. So, it is clear that EF takes into account both the supply of nature's services and demand of them by humanity. The supply is called biocapacity and is a measure of the amount of biologically productive land and water available for human use.*

Normally, EF units are normalized into global hectares, which make EF results globally comparable.



What is the ecological footprint?

The **Ecological Footprint (EF)** is a concept developed by Wackernagel and Rees in the early 90's. The main concern behind it is that we must not forget that the “humansphere” is enclosed within the ecosphere. The former provide us literally everything. Not only the resources we consume but also the ability to renew them and absorb our wastes. Both the renewal and absorption capacity depend on the health and integrity of ecosystems, regenerative capacity, can thus be a measure for the life-supporting capacity of natural capital.

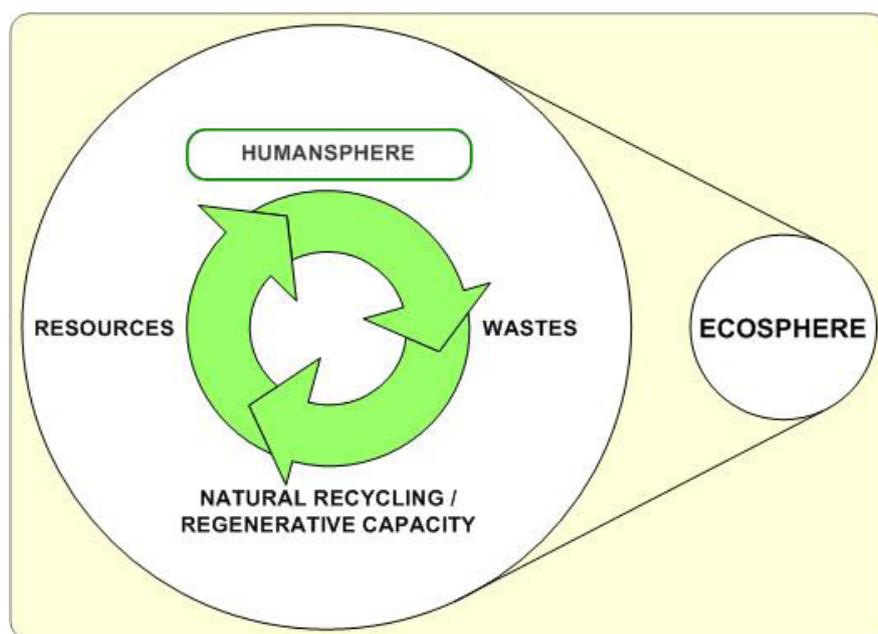
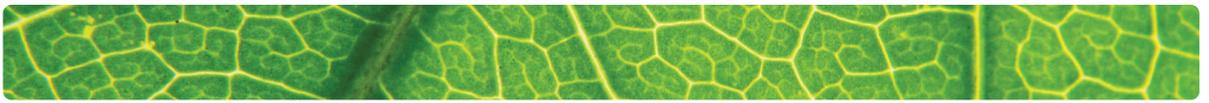


Figure 4 – The “Humasphere” enclosed within the Ecosphere

The **EF is a strong sustainability indicator**, since it assumes that the substitution of natural capital by human-made capital is limited. It measures how much of the services provided by nature an individual, population or activity requires to produce the renewable resources (crops, forest products and animal products) it consumes, and to absorb the waste it generates. The EF only looks for the so called “critical natural capital” in other words, those parts of the environment that perform important and irreplaceable functions. For the EF authors this is the minimum “quantity” of natural capital that enables the biosphere to maintain its regenerative capacity.

The EF uses a biophysical unit: land area. It shows how much **land is required to sustain the economic use of resources for a certain period of time with available technologies and given resource management conditions, and to provide infrastructures and absorb waste and pollutants**. So, it is clear that EF takes into account both the supply of nature's services and demand of them by humanity. The supply is called biocapacity and is a measure of the amount of biologically productive land and water available for human use. Biologically productive land includes areas such as cropland, forest, and fishing grounds, and excludes deserts, glaciers, and the open ocean. Therefore the exact name of this indicator should be “Ecological Footprint and Biocapacity calculation”.



Normally, **EF units are normalized into global hectares**. Global hectares are hectares with world-average productivity for all productive land and water areas in a given year. This allows comparability between all EF results. To allow comparison between different types of land using a common denominator, equivalence factors are used to convert physical hectares of different types of land into the common unit of global hectares. The use of global hectares recognizes that different types of land have different productivities. One hectare of cropland can produce a greater quantity of useful and valuable food products than a single hectare of grazing land, for example. By converting both cropland and pasture into global hectares, they can be compared on an equal basis.

For the above mentioned reasons, global hectares are the common, standardized unit used for reporting Ecological Footprint and biocapacity across time and for different areas throughout the world.

References

Global Footprint network: www.globalfootprintnetwork.org
Global Footprint network: www.footprintstandards.org

+ info

For more on the ecological footprint, see:

Wackernagel, M. and Rees, W., 1995. *Our Ecological Footprint: Reducing Human Impact on the Earth*, New Society Publishers, Philadelphia, PA.

How to cite?

Project ECOSALT, 2009. "What is the ecological footprint?" in <http://www.ecosalt.org>, accessed in [date].

Project ECOSALT developed



in a R&D consortium Instituto Superior Técnico of Universidade Técnica de Lisboa and Sativa S.A

Project ECOSALT supported by



Programa de Incentivos à Modernização da Economia