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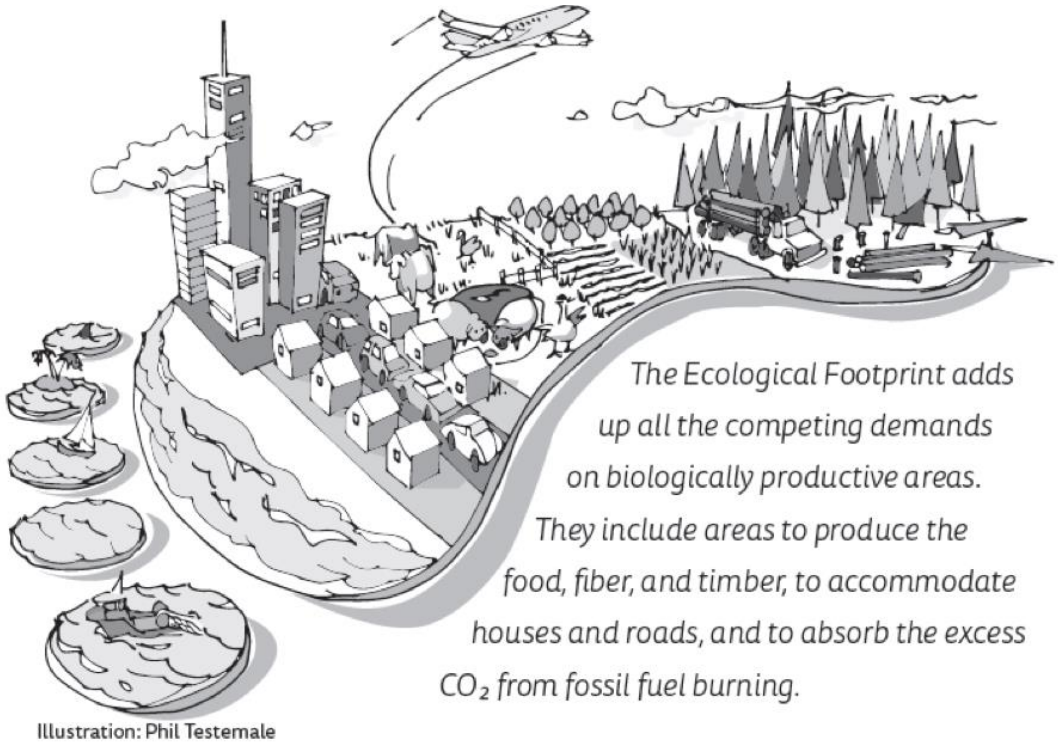
Ecological Footprint



ecological footprint (EF), measure of the demands made by a person or group of people on global natural resources. It has become one of the most widely used measures of humanity's effect upon the environment and has been used to highlight both the apparent unsustainability of current practices and the inequalities in resource consumption between and within countries.

The ecological footprint (EF) estimates the biologically productive land and sea area needed to provide the renewable resources that a population consumes and to absorb the wastes it generates using prevailing technology and resource-management practices rather than trying to determine how many people a given land area or the entire planet can support.

It measures the requirements for productive areas (croplands, grazing lands for animal products, forested areas to produce wood products, marine areas for fisheries, built-up land for housing and infrastructure, and forested land needed to absorb carbon dioxide emissions from energy consumption). One can estimate the

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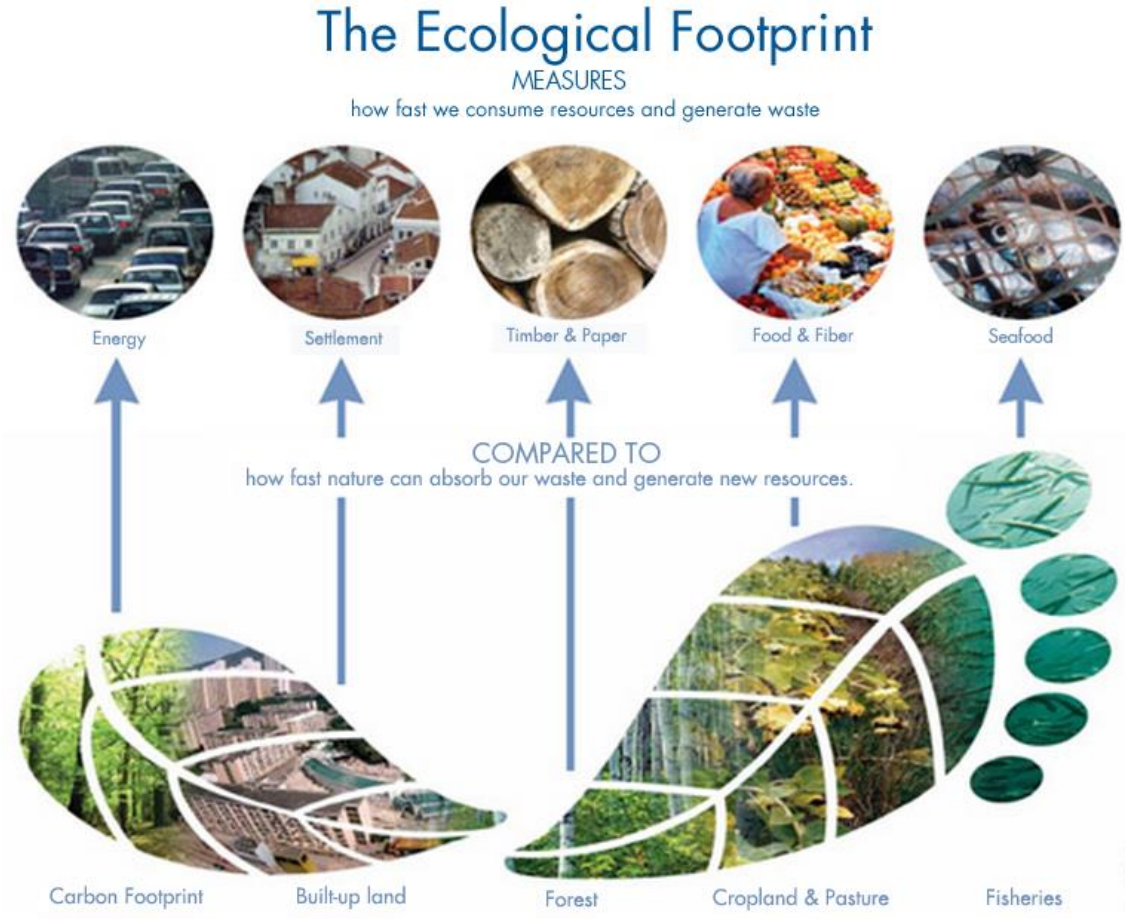
EF, measured in "global hectares" (gha), at various scales for individuals, regions, countries, and humanity as a whole. (One hectare equals 2.47 acres.) The resulting figures can also be compared with how much productive area or biocapacity is available.

Canadian ecologist William Rees created the EF concept, which Swiss urban planner Mathis Wackernagel further developed in his dissertation under Rees's supervision. Together, Wackernagel and Rees wrote Our Ecological Footprint (1996), which describes the concept.



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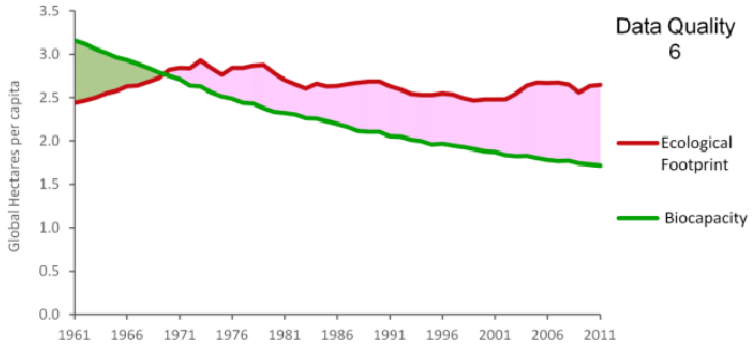
What is Bio capacity

The ecosystem's capacity to produce biological materials used by people and to absorb waste material generated by humans, under current management schemes and extraction technologies. The biocapacity indicator used in the present report is based on the Global Footprint Network, unless otherwise specified. The biocapacity or biological capacity of an ecosystem is an estimate of its production of certain biological materials such as natural resources, and its absorption and filtering of other materials such as carbon dioxide from the atmosphere.

Biocapacity is used together with ecological footprint as a method of measuring human impact on the environment. Biocapacity and ecological footprint are tools created by the Global Footprint Network, used in sustainability studies around the world. Biocapacity is expressed in terms of global hectares per person, thus is dependent on human population. A global hectare is an adjusted unit that represents the average biological productivity of all productive hectares on Earth in a given year (because not all hectares produce the same amount of ecosystem services). Biocapacity is calculated from United Nations population and land use data, and may be reported at various regional levels, such as a city, a country, or the world as a whole.

For example, there were roughly 12.2 billion hectares of biologically productive land and water areas on this planet in 2016. Dividing by the number of people alive in that year, 7.4 billion, gives a biocapacity for the Earth of 1.6 global hectares per person. These 1.6 global hectares includes the areas for wild species that compete with people for space.



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Environmental Determinism

A concept where physical environment (i.e. Climate, Resources) influences the pattern of human cultural and societal development. An example can be of Jamaican people, who are lazy due to tropical weather. The Dutch can be opposite.

Environmental determinism is a geographical and philosophical theory which claims that physical attributes of the environment, such as landscapes and climate, can significantly influence humans and therefore, the ability to impact society and development.

Essentially, this means that the environment can control how a population behaves. The theory states the physical makeup of an environment can psychologically influence individuals within a population, and this can spread within a population to ultimately define the society's behavior and culture as a whole.

History of Environmental Determinism

In terms of the history of geography, the philosophy of environmental determinism dates back to the Ancient Greeks, although the term environmental determinism wasn't officially formalized until the 1860s, by a geographer named Friedrich Ratzel.

The theory became most prevalent in modern geography during the early 19th century, due to geographers such as Alexander von Humboldt and Carl Ritter who heavily advocated the theory. Herbert Spencer used Darwinism (the theory of evolution, by natural selection) to explain social progress through a theory of social evolution in order to justify environmental determinism. However, modern scholars largely disregard this theory now. In the late 20th/early 21st century, Ellen Churchill Semple became another leading player in environmental determinism.

The main features of environmental determinism are climatic, ecological and geographical factors. These different factors are said to influence human factors in society. They are:

- Economic Development - this is the economic progress within a community.

- Cultural Development - this is when a society has an array of cultural activities. The more diverse the activities, the more cultural development within the society.
- Societal Development - this is measured by the quality of life in a society. Therefore, if the quality of life within a community is high, societal development is also considered high in that community.

Example of Environmental Determinism

Environmental determinists believe that the environment's physical features can influence an entire culture.

One example claims that people who reside in the tropics are lazy because of the hot climate, whereas those that live at a latitude outside the tropics are hard-working due to the variation in climate. This suggests that the environment, more specifically the climate, influences the cultural and societal development of a civilization, and this can sometimes be called **climatic determinism**.

Another example of environmental determinism is that island societies do not share the same traits as people from continental societies because of the remoteness of island societies. This proposes the idea that geographical factors of environmental determinism influence cultural and societal development.

Environmental possibilism

Environmental possibilism is the geographical theory that society is not completely influenced by the environment and instead can meet societal needs and development regardless of the location and environment through adaptation.

Possibilism proposes that although the environment can set some limitations in society, it does not completely control culture, and civilizations can overcome the environment. The main ideas of possibilism are that society can utilize the possibilities nature provides, rather than nature limiting society (which is proposed by environmental determinism).

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An example of possibilism is the ability of society to build infrastructure in landscapes and climates that would otherwise be considered inhabitable. For example, Palm Jumeirah in the United Arab Emirates. These islands are completely artificial and were built as a new land mass for humans to use. This shows society not being limited by the environment and instead modifying the lands to suit society.

Environmental possibilism is now much more widely accepted than environmental determinism. This is because many popular geographers pursued the idea of possibilism after critics recommended environmental determinism was inherently racist and imperialist. Supporters of possibilism suggest that the theory allows for society to have more control and freedom over their behaviors and actions, whereas the theory of environmental determinism limits human behaviors and actions to the environment that they are in.

The main differences between environmental determinism and environmental possibilism.

Environmental Determinism	Possibilism
The physical environment determines society's behaviors and actions.	There is a range of possibilities within nature that humans can use to function as a society.
Society adapts to the environment.	Society modifies the environment.