**ECOLOGICAL FOOTPRINT OF RESOURCES**

The Ecological Footprint is defined as the "productive land area and water ecosystem necessary to produce the resources consumed by the human population and to assimilate wastes especially carbon emissions produced by the human population, in any place located on land and water". The Ecological Footprint tracks the use of **six categories of productive surface areas:** cropland, grazing land, fishing grounds, built-up land, forest area, and carbon demand on land.On the supply side, **biocapacity** represents the productivity of its ecological assets (including cropland, grazing land, forest land, fishing grounds, and built-up land). These areas, especially if left unharvested, can also absorb much of the waste we generate, especially our carbon emissions. If a region’s biocapacity exceeds its Ecological Footprint, it has an **ecological reserve**.

On the other side , If a population’s Ecological Footprint exceeds the region’s biocapacity, that region runs an **ecological deficit**. Its demand for the goods and services that its land and seas can provide (e.g.,fruits and vegetables, meat, fish, wood, cotton and carbon dioxide absorption) exceeds what the region’s ecosystems can renew. A region in ecological deficit meets demand by importing, liquidating its own ecological assets (such as overfishing), and/or emitting carbon dioxide into the atmosphere.

The total “Footprint” for a given population’s activities is measured in terms of "**global hectares**." A global hectare is one hectare (2.47 acres) of productive biological area, with an annual productivity equal to the world average. By scaling each area in proportion to its bioproductivity, different types of areas can be converted into the common unit of average bioproductivity, the global hectare (gha). This unit is used to express both the Ecological Footprint (EF) and the Biocapacity (BC).Thus both concepts are comparable. At present, the biosphere totals about 11.2 billion hectares of biologically production area that is capable of providing resources and treating waste and corresponds to about one quarter of the Earth’s area. These biologically productive hectares include 2.3 billion hectares of ocean and inland waters and 8.8 billion hectares of land. The terrestrial land area consists of 1.5 billion hectares of cropland, 3.5 billion hectares of grazing land, 3.6 billion hectares of forestland, as well as 0.2 billion hectares of built-up land.

Ecological Footprint analysis tracks the regenerative capacity of an ecosystem in terms of historical flows of natural resources. A “**flow**” corresponds to an amount per time unit, (for instance the number of tons of roundwood grown in a given area over a one-year period). A **“stock”** is the standing balance of resources at any specific time, (for instance, the tons of roundwood available for harvest in a hectare of forest at the end of a given year). The National Footprint Accounts (NFA) captures flows rather than stocks, and thus do not specify when **overshoot** will result in the total depletion of accumulated resources in an ecosystem.

Basically, The Ecological Footprint (EF) is a **measure of the demand** addressed to the biosphere by the human activity and most of these resources and waste flows can be measured in terms of the biologically productive area necessary to maintain them.

Thus Ecological Footprint (EF), under its simplest form, is calculated by the following equation:

EF = (CA / RA)

CA = annual demand of a product (tonnes per years)

RA = annual yield of the same product (tonnes per hectares)

The sum of global hectares needed to support a person is his total ecological footprint.