A Sustainable Environment: Our Obligation to Protect God's Gift

by

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Managing the Ecological Footprint

The experiment on St. Matthew Island demonstrated the consequences of overshooting the carry capacity of the environment. It was determined that this island had the resources to maintain 1600-2000 reindeer. But when the population grew to 6000, the renewable resources were destroyed to the level that the island could subsequently handle only 42 reindeer. Are we in jeopardy of overshooting the carrying capacity of the Earth?

To seek an answer as to possible over-utilization of the earth's resources, we must look at a concept called the Ecological Footprint. This is a tool for measuring and analyzing human natural resource consumption and waste output within the context of nature's renewable and regenerative capacity (or biocapacity). It represents a quantitative assessment of the biologically productive area required to produce the resources (food, energy, and materials) and to absorb the wastes of an individual or region. In terms of resources, it includes cropland, grazing land, forest, fishing grounds, and built-up land. The footprint to handle waste output includes the forests required to absorb all the carbon dioxide emissions resulting from the individual's energy consumption.

In order to be sure we don't exceed the carry capacity of the earth, the footprint for humanity must be within the annual regenerative capability of nature. Similarly, we must not exceed the absorptive capacity of the planet for the handling of the waste that is produced. A *sustainable* environment will exist if we live within the earth's regenerative and absorptive capacity. If we remove more from nature than can be provided indefinitely, we are on an unsustainable track.

An organization called, Redefining Progress, has been calculating and analyzing the ecological footprint of about 140 countries. According to its calculations, in the late 1970s humanity's collective Ecological Footprint breached the sustainability mark for the first time, and it has remained unsustainable ever since. In fact, the deficit for maintaining sustainability has grown every year since then, and it appears that this deficit is on a path to grow further in the foreseeable future.

It is interesting to note the variation in the ecological footprint by region or nation. Not surprising, the largest footprint belongs to the United States where it is 23.6 acres per capita. This means that for each individual living in the U.S., over 23 acres are necessary to provide the consumptive and disposal needs for that person. By comparison, the footprint for Greece is 11.8 acres, and that of India is 1.9 acres. Two additional questions that might be asked are: 1) is the footprint increasing with time, and 2) how does this footprint compare to the available capacity? Growth in the ecological footprint can be attributed to an increase in population, an increase in consumption, or both. Of the Western European countries, Sweden, Belgium, Portugal, Spain, and Switzerland have

increasing footprints while Denmark and The Netherlands are making concerted efforts to reduce their footprints. Countries with the largest deficit in available capacity are Singapore (17.5) and the U.S., the United Kingdom, Netherlands, Germany and Belgium, all with about 9 acres per capita. The largest excess capacity is Iceland (34 acres per capita), New Zealand (32), Peru (15) and Australia (12). The most striking result of this Ecological Footprint analysis is that if the entire world lived like the people of the United States, it would take over five planet Earths to support the present world population.

Is anything being done about this over-utilization of the environment? Some cities like Santa Monica, CA and Almada, Portugal are making a concerted effort to reduce their ecological footprint. We, as individuals, can also do something about it, and I will give you some ideas in my next few articles.

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