

WHAT'S IN A FOOTPRINT?

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Recently I have been conducting an informal poll with people I run into around town. I simply ask them, "What is necessary for life on the planet." This is not a "trick" question but it is often met with bewilderment. When I get a response at all, it is frequently something like "we, the people," support life or "my business" or "our city". Only rarely do people think to mention the sun--the great furnace that powers our earth; water--the giver of life; soil--the holder of nutrients and foundation for life.

A Canadian researcher, Dr. Mathis Wackernagel, is greatly concerned about our failure to understand our dependency on the natural world and he is doing something about it. Wackernagel has developed an accounting tool aimed at expressing all human consumption-related activities in terms of the area of productive land required to support them in a sustainable fashion. Wackernagel refers to this land area as our "Ecological Footprint." Think of it this way: our economy has a metabolism; it is like a cow in a field--consuming resources and emitting waste products. Just as a responsible farmer knows how much pasture is necessary to support a cow, we, too, should know how much pasture (i.e., land) is necessary to sustainably support each of us. Part of our ecological footprint is in the land our homes, factories, commercial outlets, and roads occupy; part is in the land needed to provide our food and fiber, and so forth.

Wackernagel has found that each U.S. citizen would need about 12 acres of land in production--year in and year out--to provide all his/her needs in a SUSTAINABLE fashion. To meet the sustainability requirement, we would need to substitute renewable energy sources (e.g., biofuels, solar, wind) for the unsustainable fossil fuels that we now depend on.

An interesting thing happened when Wackernagel divided the total productive land on the planet (i.e., the 35 billion acres of land that can be used for farming, grazing, forestry, etc.) by our planetary population of six billion. He discovered that a "fair earth share"--what each of us would receive if this productive land were shared equitably--was approximately 5 acres/person. This means that we would need more than two earths to sustainably support our current population at the level of U.S. consumption [$12 \text{ acres (U.S. requirement)} / 5 \text{ acres (Fair Earth Share)} = 2.4 \text{ earths}$].

And this calculation, of course, blithely ignores the other 5 million species that inhabit the planet. How much of the earth's 35 billion productive acres need to be set aside for them? Tough question.

A powerful feature of Wackernagel's analysis is that it offers solutions. For example, it allows us to compare the ecological footprints of different lifestyle choices. Take the case of a person who decides to sell his car and instead commute 3 miles back and forth to work by bicycle. According to Wackernagel's calculations, the footprint for bike commuting is 133 square yards. This is the amount of land that would need to be permanently set aside to provide the food (biker body fuel), raw materials and energy (for bike construction), and space (bike paths) necessary to commute by bicycle. If this same person were to commute by bus, 327 square

yards would have to be set aside on a permanent basis. Finally, if the citizen chose to commute in a single-occupancy car, the land area or "footprint" would be 1,668 square yards or 13 times more than the amount needed for commuting by bike.

The point, of course, is that we can dramatically reduce our footprint size by the decisions we make regarding transportation, housing (e.g., living in homes of modest size designed in ways that minimize the use of energy), food (e.g., eating whole foods produced close to home rather than highly processed, energy-intensive foods shipped from far away), and so on. There is good news here. We can measure our footprint and take creative steps to minimize it.

But what I find most compelling of all about Wackernagel's Ecological Footprint concept is that it brings the question of sharing and equity front and center. As a species, we are doomed unless we learn to humbly share our wealth with those people who are less fortunate--but not necessarily less wise--than ourselves. And we are doubly-doomed if we fail to make room for the other five million species that dwell on the earth with us. All of us, around the globe, deserve a fair-earth share.