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3 factors determine extent of environmental destruction

We influence the environment in two basic ways, by using natural resources and by releasing waste into the environment. The extent of our impact depends on the amount of resources used, the amount of waste generated and our population.

Practices that don't harm the environment and human health when practiced by only a few can be catastrophic when practiced by a large number of people. If a few people dump sewage into a river, the environmental impact might be unnoticeable. If thousands adopt the practice, it endangers the river ecosystem and human health.

"The impact of any human group on the environment can be usefully viewed as the product of three different factors," wrote Paul and Anne Ehrlich in "The Population Explosion." "The first is the number of people. The second is some measure of the average person's consumption of resources, which is also an index of affluence. Finally, the product of those two factors — the population and its per-capita consumption — is multiplied by an index of the environmental disruptiveness of the technologies that provide the goods consumed. The last factor can also be viewed as the environmental impact per quantity of consumption. In short, impact equals population multiplied by affluence, multiplied by technology, or I = PAT."

"The I = PAT equation is the key to understanding the role of population growth in the environmental crisis," the Ehrlichs wrote. "It tells us why, for example, rich nations have such serious population problems (because the A and T multipliers for each person are so large). It also tells us why a little development in poor nations with big populations like China can have an enormous impact on the planet (because the P multiplier on the A and T factors is so large.)"

Some claim the United States is the most overpopulated nation because of the huge environmental impact of our technologies and our large rate of consumption. As one indication of the disproportionately large environmental impact of the United States, consider that the United States accounts for only about 5 percent of the total world population, but uses 25 percent of the world's fossil fuels.

The per-capita environmental impact of the United States is 1½ times that of the Soviet Union, twice that of Britain, 14 times that of China, 40 times that of India and almost 300 times that of Laos. Although our population is not as large as that of China or India, the United States does more damage to the environment than any other country.

Great effort has been directed at increasing our technological efficiency, such as the switch to compact fluorescent lighting, but that can be quickly canceled out by an increase in population.

For example, if we were able to reduce the global per-capita consumption of resources by 5 percent and improve the efficiency of our technologies by 5 percent — effectively reducing global environmental impact by 10 percent — these gains would be negated in six years by population growth.

It took 3 million years for the world's population to reach 1 billion by the early 1800s. Only 130 years later, the population had doubled to 2 billion. The world population doubled again in 45 years, reaching 4 billion in 1975. It will take only 39 years for the current world population of 5.4 billion people to top 10 billion.

Environmental challenges increase every minute as the human population expands. The challenge is comparable to running up a steep incline that rises higher with every step forward. Only by stabilizing population growth, or halting the increase of the incline, can we hope to make substantial progress in conserving our environment.

If you have a suggestion for a column, a gripe, a success story or whatever, write it down and send it to me, care of the Columbia Daily Tribune, PO Box 798, Columbia, Mo., 65205.