How world population potential has grown

During his presentation of the progress on the LaRouche-Riemann world energy and population model, Uwe Parpart identified three major periods of human development, which he distinguished in terms of energy flux density and population potential.

Repeated leaps in human society's energy flux density and population potential, Parpart demonstrated, refute the neo-Malthusians' claims that there is a fixed point at which the earth becomes overpopulated.

The first major period of human population growth reached up to about 10,000 B.C. The most accurate scientific information at this time indicates that 10,000 B.C. marks the transition in the most advanced regions of the world economy from a hunting-and-gathering society to an agriculturally based society—the Agricultural Revolution. Total world population at that period was no larger than 10 million people, but was probably approaching 10 million, a figure which can be considered the actual population potential for the human species at the hunting-and-gathering stage of economic reproduction.

One way that this population potential figure can be tested is by reference to contemporary hunting-and-gathering tribes in the Kalahari desert, which use about 15 square kilometers per person to sustain their existence in the hunting-and-gathering mode. The total habitable land surface of the earth is about 135 million square kilometers: if this is divided by 10 million, the result will be about 12-15 square kilometers.

A major increase in population growth occurred following the Agricultural Revolution. From the year 7,000 B.C. on, extremely rapid growth of the human population was taking place, and by 3-4,000 years before Christ there were several hundred million people on the earth. We know that in the year 2,000 B.C. and later there lived close to 150 million on the Indian subcontinent alone.

However, the population potential of the human species in the entire period from 10,000 B.C. to the turn of the 18th century, probably could not and would not have exceeded 1 billion people. In the year 1750, it is estimated that there lived about 650-800 million human beings. There exist fairly accurate population figures for the second half of the 18th century, and they indicate strongly that population potential at that time and for that mode of economic reproduction could not exceed 1 billion. Another indication that a potential population density of about 1 billion was not to be exceeded is the fact that even though there were no major wars of depopulation like the Thirty Years War (1618-48) during the 18th century, the population growth rate during the second half of the century fell to about .3 percent on a world scale by 1800.

Then followed the Industrial Revolution. This change in mankind's mode of reproduction ushered in the most rapid population growth in human history. A look at the second half of the 19th century, the period during which there was economic realization of the technological advances of the first half of the century, shows enormous population growth rates. For example, in the territory which is now East and West Germany combined, there were 17 to 18 million people in the year 1800. By the year 1900, this population had grown to 70 million, that is, a fivefold increase in about a century's time. In that same period of time, at least 10 million native born Germans migrated the the United States.

How was this growth rate sustained? What are the actual parameters of economic development that correlate to such a growth rate, and what kind of conclusions can we draw from the kind of economic and population growth that occurred during this period?

The population potential defined by the Industrial Revolution was specifically defined by two breakthroughs in technology: the steam engine particularly as it was perfected in the form of the internal combustion engine, and electricity. With the rise in energy flux density brought about by these new technologies, the population potential of the human species rose by approximately two orders of magnitude over what it was in 1800.

If we consider only two-thirds of this figure to be optimum, and project worldwide population figures in terms of a population density roughly that of India—200 people per square kilometer—at least 30 billion people could live on the earth's habitable 135 million square kilometers.