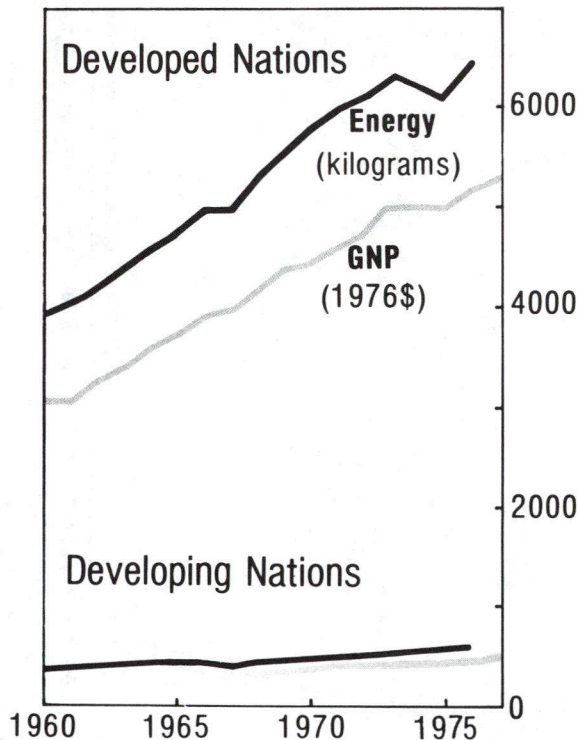


In a more general sense, the industrialized world must also be concerned with its need for energy relative to the developing world. Figure 3-2 shows very clearly that the gap in per capita energy demand between these two parts of global society has widened over the last two decades. At the same time, oil has risen to a dominant position in satisfying world requirements for energy (Figure 3-3). Industrialized nations, with their diversified energy systems, have better prospects for oil substitution than do developing countries which, as a group, depend even more heavily upon petroleum. It is apparent from this perspective that a much better balance must be achieved in the global use of energy, both regionally and by energy source.

The degree to which the distribution of energy consumption varies across the world's population is clearly indicated in Figure 3-4. The total demand for primary energy worldwide in 1975 was estimated at 8.2 terawatts, summed over the year (that is, 8.2 TW-years). The rate of energy consumption in a world then populated by almost four billion people therefore averaged out

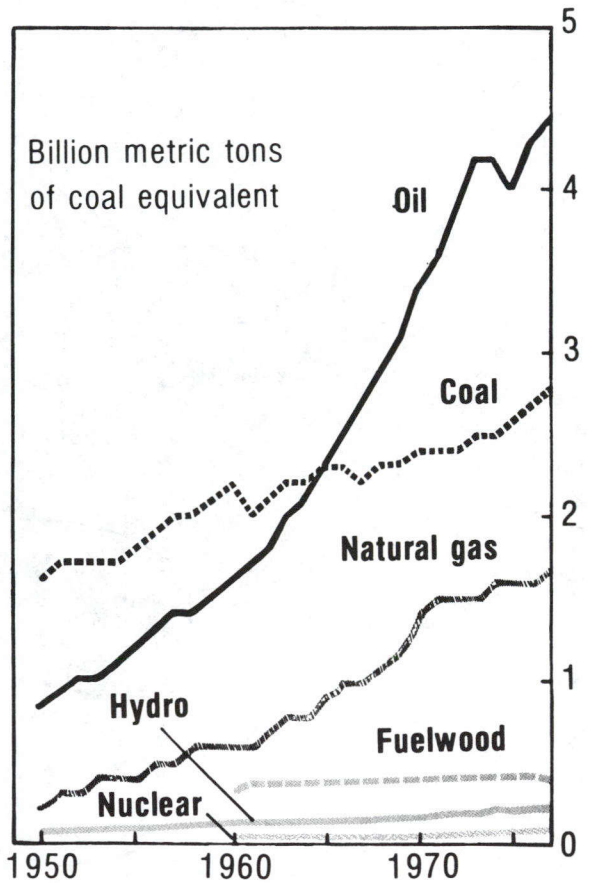
Figure 3-2: PER CAPITA GNP AND DEMAND FOR ENERGY IN THE DEVELOPED AND DEVELOPING NATIONS, 1960-1977



Note: Per capita demand for energy is measured in kilograms of coal equivalent per person.

Source: Sivard, 1979, p. 11.

Figure 3-3: WORLD PRODUCTION OF PRIMARY ENERGY, 1950-1977



Source: Sivard, 1979, p. 7.

to about 2.1 kilowatts per person. As one can see from Figure 3-4, however, the top 5% of the world's population consumed energy at an average rate of more than 10 kilowatts per person, while the bottom 50% displayed an average rate of energy consumption of less than a kilowatt per capita.

The world's population is presently estimated to be growing at a rate of very nearly 2% per year, sufficient to double it in 35 years. Even allowing for some slackening in the rate of growth, man's numbers appear almost certain to be about 50% larger in the year 2000 than they are today. And most of that expansion will occur in regions amongst the lowest in per capita energy use today. Thus the concern with conserving energy in the developed world is not shared by the majority of the world's people. Just to maintain the present per capita use of energy over the coming 20 years will require increasing the global supply of energy by more than 50%. There is no conceivable way in which the conser-