Alarming acceleration in CO2 emissions worldwide

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Between 2000 and 2004, worldwide CO2 emissions increased at a rate that is over three times the rate during the 1990s—the rate increased from 1.1 % per year during the 1990s to 3.1% per year in the early 2000s.

The research, published in the early on-line edition of the *Proceedings of the National Academy of Sciences* May 21-25, also found that the accelerating growth rate is largely due to the increasing energy intensity of economic activity (the energy required to produce a unit of gross domestic product) and the carbon intensity of the energy system (the amount of carbon per unit of energy), coupled with increases in population and in per-capita gross domestic product. “No region is decarbonising its energy supply,” states the study.

The research showed that the increases in energy and carbon intensity constitute a reversal of a long-term trend toward greater energy efficiency and reduced carbon intensities. “Despite the scientific consensus that carbon emissions are affecting the world’s climate, we are not seeing evidence of progress in managing those emissions in either the developed or developing countries. In many parts of the world, we are going backwards,” remarked co-author of the study Chris Field, director of the Carnegie Institution’s Department of Global Ecology.

The research also shows that the actual global emissions since 2000 grew faster than in the highest of the scenarios developed by the Intergovernmental Panel on Climate Change (IPCC). “The trends

relating energy to economic growth are definitely headed in the wrong direction," Field commented.

The acceleration of carbon emissions is greatest in the exploding economies of developing regions, particularly China, where the increases mainly reflect increasing per capita gross domestic product. The study** divided the world into the USA, the European Union, Japan, the nations of the former Soviet Union, China, India, and three regions covering the rest of the world.

Between 2000 and 2004 the developing countries accounted for a large majority of the growth in emissions, even though they contribute only about 40% of total emissions. In 2004, 73% of the growth in global emissions came from the developing and least developed economies, comprising 80% of the world's population. That same year the developed areas (including the Former Soviet Union), contributed about 60% to the total emissions. These countries account for 77% of the cumulative emissions since the start of the industrial revolution.

Between 1980 and 2004, total emissions in the developed areas (USA, Europe, Japan, and other smaller economies) increased as a result of fast growth in per-capita gross domestic product, coupled with relatively slight increases in population. This growth was partially offset by decreases in the amount of energy needed to make each unit of product.

The study emphasizes that the growth in emissions can be caused by a variety of factors and that managing emissions in a growing economy requires progress in both the energy intensity of the economic system and the carbon intensity of the energy system. According to Field, "solving the first part of the puzzle requires shifting more of the economy toward activities like service industries and information technology, where emissions can be lower, and emphasizing energy efficiency. Solving the second requires deploying new sources of non-

emitting energy like wind, solar, and nuclear power."

Carnegie president Richard A. Meserve notes that "the impacts of carbon dioxide in our atmosphere are the result of cumulative emissions. This study is a signal that global action is urgently needed to reverse the adverse trends or the challenge of responding to climate change will be more difficult."

Source: Carnegie Institution