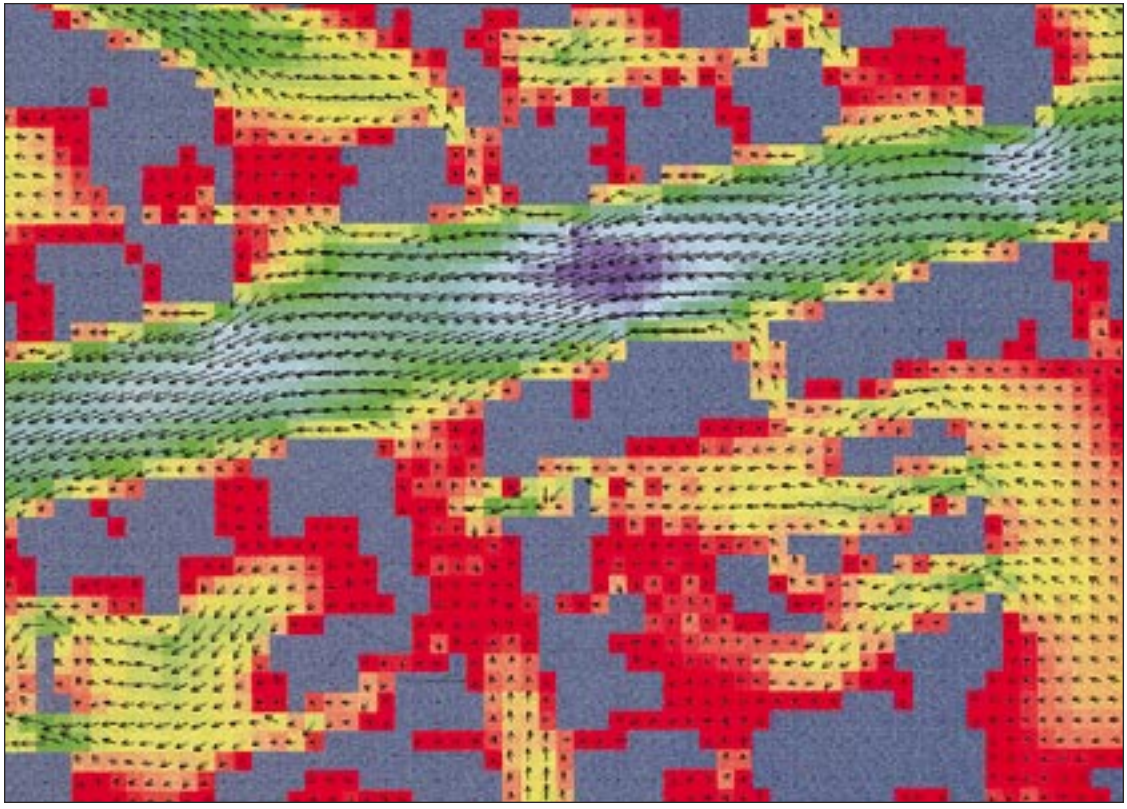
# THEMES

## ENVIRONMENTAL POLLUTION

*Munyaradzi Chenje*
United Nations Environment Programme



Map courtesy of Dr. Rainer Schenk, Engineering Office for Environmental Protection and Field Technology.

This is a three-dimensional wind-field model showing the spread of pollutants in an area of heavy traffic. Major roads and side streets act almost like rivers and tributary streams.

*Definition*

The buildup and concentration of toxic levels of chemicals in the air, water, and land, which reduces the ability of the affected area to support life. Pollutants may be gaseous—ozone and carbon monoxide, for example; liquid—discharge from industrial plants and sewage systems; or solid—landfills and junkyards.

*Description*

Some pollutants will cause your eyes to water or your skin to break out in a rash, but most pollutants cannot be easily seen, smelled, or tasted. Their presence is nevertheless being detected in increasingly harmful quantities at the global, regional, subregional, national, local, and community levels, affecting human health as well as plant and animal life. Species extinction, reproductive mutation, human respiratory diseases, and various kinds of cancer have all been traced to the increasing toxicity of our environment.

Stratospheric ozone depletion—caused by chemicals used in the home as well as industrially—is a major threat to the welfare of the entire planet. The ozone layer protects us from ultraviolet radiation, which is responsible for sunburn, snow blindness, eye damage, skin cancer, and the premature aging and wrinkling of skin. The adoption and ratification of the 1987 Montreal Protocol to the Vienna Convention on Substances That Deplete the Ozone Layer has facilitated the phase-out of ozone depleting substances such as chlorofluorocarbons—used typically as aerosol propellants and as a coolant in refrigeration systems—and their replacement by less harmful chemicals and techniques.

On the regional and local levels, four related developments have significantly worsened air quality: growing cities, increasing traffic, rapid economic development, and higher levels of energy consumption. The course of the last two or three centuries suggest that there is a link between population and economic growth, but theories about the nature and strength of that connection remain the subject of debate: Does a rapidly growing population stimulate economic growth, or is it the other way around? Does a too-large population form a kind of natural barrier or check to otherwise unlimited economic growth? Should economies be allowed or encouraged to grow without regard to population? Is there an optimal population size for a country, a region, the planet? Does sustainability imply zero population growth and steady state economies, or are growth and sustainable communities more or less compatible?

Whatever the answers to these questions may be, it is clear that increased levels of pollution accompany human growth. One key to managing this equation is "life cycle control" of all products, from automobiles and computers to paper and soft drinks. This is not simply recycling on both the micro (home) and macro (industrial) levels. This is recycling taken to the next step—finding ways to make the waste material of one product the fuel for another. Economic activity becomes a closed system rather than one that depends on the use of nonrenewable resources.

### *Bibliography*

United Nations. 1992. *Agenda 21: The Rio Declaration on Environment and Development*. New York: United Nations.

United Nations Environment Programme. 1999. *Global Environment Outlook 2000*. Nairobi: UNEP

### *Web sites*

*www.unep.net*
Information, links, and references about the global environment.

*www.wri.org*
World Resources Institute. Earth Trends: The environmental information portal.

*www.un.org/esa/sustdev/agenda21.htm*
Agenda 21: The Rio Declaration on Environment and Development.

### *Further reading*

Seinfeld, John H. and Spyros Pandis (contributor). 1997. *Atmospheric Chemistry and Physics: Air Pollution to Climate Change*. New York: John Wiley and Sons.

Kosobud, Richard I., Douglas L. Schreder, and Holly M. Bigep, editors. 2000. *Emissions Trading: Environmental Policy's New Approach*. John Wiley & Sons.

Schnol, Jerald L. 1996. *Environment Modeling: Fate & Transport of Pollutants in Water, Air, and Soil*. John Wiley & Sons.