these problems. The office, Speth thinks, would employ about 30 people. They would work in conjunction with a larger, quasi-public institute established to collect and analyze data on global trends.

The idea of putting a new caution-preaching office in the White House is not likely to go over well with the Reagan Administration. On the contrary, the new President seems ready to embark on a course of sharpened competition with the rest of the world. Self-assertion and growth, not restraint and accommodation, are the bywords of the new government.

The *Global Future* report argues, however, that the problems it foresees are unavoidable, and that it is in the nation's interest to grapple with them sooner rather than later. It will not be sufficient to compete more aggressively for the world's wealth, the report concludes, for if every nation follows that course, all will be impoverished more rapidly. The United States should lead the way toward "sustainable" economic development, the CEQ says, by aiding foreign governments in breaking cycles of poverty and resource depletion.

The most pressing issue is population growth. Between now and the year 2000, the world's population will grow from 4.5 billion to more than 6 billion, an increase in two decades almost equal to the entire human population of 1930. Ninety percent of the growth will be in poor countries. As conditions become more desperate, there will be a greater likelihood of war or economic chaos—both of which will affect America's welfare. The United States should begin to relieve the pressures now, the report suggests, by doubling the amount of money spent on international aid to family planning (demands for aid now outstrip funds for the first time), paying for new research on contraceptives, and developing a "population policy."

America also should take the lead in providing developmental economic aid, the report says. As nations climb above the poverty level, it is argued, they will be more able to master their own resource shortages. (America now ranks 15th among the donor countries in terms of aid given as a fraction of gross national product.) International cooperation is needed to prevent further destruction of croplands, to develop renewable energy supplies in poor countries (chiefly fuel-wood forests); to maintain the world's diminishing tropical forests (40 percent of those remaining may disappear by 2000); conserve endangered species (15 percent of those extant could be gone by 2000); allocate contested fresh water supplies; and, finally, to restrain the burning of fossil fuels—the chief source of carbon dioxide released in the atmosphere, a threat to the global climate.

For what these proposals are meant to accomplish, Speth says, they are cheap: only $1.5 billion a year.

## By Flood, if Not by Fire, CEQ Says

In another warning, the Council on Environmental Quality (CEQ) issued a special paper on 13 January, focusing exclusively on the recent accumulation of carbon dioxide ($CO_2$) in the atmosphere. The report, *Global Energy Futures and the Carbon Dioxide Problem*, backs the hypothesis which says that marked increases in $CO_2$ concentrations observed in the last 180 years have probably been produced by increased use of fossil fuel. Unless the rate of $CO_2$ production is slowed, the paper finds, the gas will create a significant problem for the world in the 21st century. Radiated heat from the surface of the earth will be trapped by the atmosphere, leading to warmer temperatures, altered wind and rain patterns around the globe, and higher ocean levels.

If fossil fuel burning continues without increase at its present rate, the $CO_2$ concentration in the atmosphere will reach a point equal to twice the preindustrial (1800) level by the year 2175. But if fossil fuel use is allowed to increase at the 1940 to 1973 average rate of 4 percent a year, the doubling of $CO_2$ will occur in 2025. The faster the waste gas collects, the more severe will be the climatic impacts.

Because the expected increases in $CO_2$ concentration are "unprecedented in the modern history of climate," the report says, there is no way to be certain what the effects will be, but temperatures will probably rise gradually, the impact being felt a decade or two after the $CO_2$ has caused a change. The most striking forecast in this report is that the doubling of $CO_2$ in the atmosphere could cause the disintegration of the West Antarctic ice sheet and raise the sea level by 5 to 8 meters. The flood tides, it is estimated, would cover the present dwellings of 11 million Americans.

This and other potential dangers lead the CEQ to recommend that "the United States should strive here and abroad to keep open a variety of energy options and not become committed to an extended period of unrestricted fossil fuel use." In addition, the CEQ plugs for more research on the effects of $CO_2$ on climate and urges the federal government to consider lobbying for an international goal of keeping the $CO_2$ concentration at less than twice the preindustrial level.

## EPA to Investigate Tree Smog

Ronald Reagan is not the only person concerned about pollution by trees. Last December the Environmental Protection Agency (EPA) announced that it had awarded a 2-year contract worth $114,000 to a company that proposes to find out how much trees contribute to city smog.

One of the scientists who will work on the project, Alan Lloyd of the Environmental Research and Technology Corporation in California, says that the EPA has been kicking the question around for 3 or 4 years.

Executives from some industries affected by the EPA's rules controlling photochemical smog (ozone) have been trying to get the agency to look into tree emissions, for they argue that industry should not be held to a higher standard of purity than nature. Because oaks and pines are known to emit certain hydrocarbons (isoprene and alpha pinene), it's been suggested that city smog is not entirely man-made, but partly a natural phenomenon.

Lloyd's task will be to produce a model of nature's chemistry to be used in combination with auto emission models and weather models to come up with an estimate of the amount of blame to be assigned to trees.

***Eliot Marshall***