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wind-power systems ("wind farms"). The Bendix Corporation and Hamilton Standard have developed 3,000-kilowatt wind turbines. And in the breezy Columbia River Valley in the Pacific Northwest stand three 2,500-kilowatt turbines. Built under U.S. Energy Department supervision for 14 mph average winds, each consists of two narrow blades almost as long as a jumbo jet's wings. Their electricity is cost-competitive with electricity from more conventional sources.

California has witnessed the "most ambitious wind-farm development effort in the world so far," reports Flavin. He gives three reasons: windy mountain passes, tax incentives for investors, and state-run resource assessments. Southern California Edison expects to have wind turbines producing 120,000 kilowatts by 1990. Meanwhile, Canada, Denmark, Great Britain, the Netherlands, the Soviet Union, Sweden, and West Germany are supporting similar research. "Few countries are completely windless," writes Flavin, "something that cannot be said for coal, oil, or uranium."

Safe Water: An Elusive Goal

"Water for the Third World" by Asit K. Biswas, in *Foreign Affairs* (Fall 1981), Foreign Affairs Readers Services, 58 East 68th St., New York, N.Y. 10021.

Besides food and energy shortages, many Third World countries have little safe water for even the most fundamental needs—drinking, washing, cooking, sanitation. The UN General Assembly has called for "clean water for all by 1990." Biswas, vice president of the International Water Resources Association, takes stock of the cultural, economic, and political obstacles.

Estimates of water scarcity vary, but the general picture is grim. A 1975 UN World Health Organization (WHO) survey found that, on average, 77 percent of the urban populations of 71 developing countries had some water piped to them through house connections or communal standpipes, but among rural folk only 22 percent had access to potable water. Service varies by country. While Egypt reported in 1977 that over 93 percent of its total population was supplied with safe water, Gabon could claim only one percent. Kenya is more typical: There, 97 percent of city dwellers had access to potable water compared with two percent of rural dwellers.

Why is clean water chiefly a rural problem? For one thing, although developing countries are predominantly rural, the people who run governments and man the bureaucracies tend to be city folk. Moreover, investment in public works of any kind seems less economical in thinly populated farm areas.

Assistance from national and international agencies has, often as not, been misguided. WHO, for instance, has set standards for water quality, but they are too ambitious, more appropriate for European cities than tropical countryside. Contributions for equipment have generally not been matched by money for maintenance and trained personnel: 80

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percent of the "foreign aid" tube wells in South India and Bangladesh were inoperative in 1976. And acting alone rather than in consultation, donor nations have sometimes introduced new complications: To relieve a 1972 drought in Ethiopia, several Western nations separately sent water pumps that could not take the same spare parts.

The World Bank figures that universal access to safe water will cost \$300 billion (in 1978 dollars)—a gross underestimate, says Biswas, but still 10 times the actual investment during the 1970s. Such funding is possible only if developing countries make water a top priority.

Who Pays For Clean Air?

"The Clean Air That You're Breathing May Cost Hundreds of Billions of Dollars" by Lawrence Mosher, in *National Journal* (Oct. 10, 1981), 1730 M St. N.W., Washington, D.C. 20036.

How much does clean air cost? A Business Roundtable study estimates that compliance with the Clean Air Act of 1970 alone could cost the nation \$400 billion (in 1980 dollars), by 1987. For the past several years, industry has been calling for modified air quality standards and for the abolition of needlessly complex rules. On the other side, environmentalists have urged even stricter regulations to deal with an array of "newly perceived" environmental threats, including acid rain and fine particulates.

Resistance from both political parties has forced the Reagan administration to back away from its early attempt to subject air quality standards to cost-benefit analysis. Indeed, writes Mosher, a *National Journal* reporter, clean air has become "as risky a target for budget cuts as social security benefits." Action taken on the Clean Air Act (now up for review) should indicate whether the administration is interested in improving or in simply abolishing regulations.

Even if the administration is serious about reform, it will have difficulty sorting out the conflicting data. An EPA study covering 1970-86 put the total cost of the Clean Air Act at \$291.6 billion (in 1977 dollars)—an estimate far below the Business Roundtable's. Productivity growth has declined steadily since the act was passed (from three percent in 1965 to about one percent in 1978), and one University of Wisconsin economist attributes eight to 12 percent of the slowdown to environmental regulations. Edward Denison of the Bureau of Economic Analysis maintains, however, that the adverse economic effect of environmental controls on productivity growth was only 0.08 percent by 1978.

One clear beneficiary of clean air regulations is the air pollution control industry; its approximately 1,000 companies reaped some \$2.4 billion worth of sales in 1981. But Mosher agrees with John Schork, chairman of Research-Cottrell Corp., one such firm, that it has become "impossible for businessmen to predict what environmental standards they will be forced to live with, and so plans to build new plants have