

earth and environment notes

DISASTERS

Asia's costly floods

Because of heavy floods, the Philippines, Japan, Taiwan, Korea, India and East Pakistan together suffer more than a billion dollars worth of damage and almost 2,900 deaths every year, estimates the United Nations Economic Commission for Asia and the Far East. The \$316 million that these countries spend annually to combat the hazard is not enough, according to P. T. Tan, chief of ECAFE's resources development division.

"This amount," he says, "which is already a heavy burden on the economy of these countries, is still considered insufficient to provide the desired degree of flood protection." The problems include over-population, falling exports, limited markets and too little aid, which do not leave enough surplus for proper protection.

At an ECAFE meeting in Australia, the Philippines delegate, G. S. Manalac, criticized the organization's more affluent members for spending huge amounts on space research and defense and virtually ignoring recurring droughts, typhoons and floods.

NATURAL RESOURCES

Poor Appalachia's mineral wealth

A 492-page report summarizing the mineral resources of the Appalachian region has been prepared by the Interior Department as "a contribution in the Federal Government's efforts to aid this economically depressed area."

In Appalachia's 185,000-square-mile, 12-state area, says the report, are: about 10 percent of the known and potential soft coal in the U.S., more than 375 million barrels of crude oil, 5.5 million cubic feet of natural gas, virtually inexhaustible supplies of construction materials (including stone, crushed stone and cement limestone), numerous copper deposits and indications of large, low-grade deposits of gold.

The report, "Mineral Resources of the Appalachian Region," is available from the Government Printing Office for \$4.50.

POLLUTION

Sewage ills and bills reported

The sorry state of municipal sewage treatment plants and overworked sanitary sewers across the U.S. has been detailed to Congress in a report from Interior Secretary Stewart L. Udall.

New York's is the biggest problem, according to the report, with more than 3.7 million people having inadequate treatment and 4.25 million having no treatment at all. Straightening out the mess will cost the state an estimated \$963 million.

Of the major drainage basins, the North Atlantic region tops the list with sewage problems affecting almost 13 million people and which will probably cost some \$2.4 billion to correct.

Nationally, catching up with the city sewage problem will cost almost \$15 billion, the report estimates, with the largest piece of the bill being \$6.2 billion for new sanitary sewers.

The analysis, part 4 of an overall study called "The

Cost of Clean Water," was ordered by Congress in the Clean Water Restoration Act of 1966. It is available from the Government Printing Office, Washington, D. C., for \$.35.

HYDROLOGY

Rewatering the Southern High Plains

U.S. Geological Survey hydrologists are combing every available source of information to see if it will be possible to restore the declining ground water over an area which is bigger than Connecticut, Delaware, Massachusetts, New Jersey, Rhode Island and the District of Columbia combined.

The area is the Llano Estacado, the Southern High Plains of Texas and New Mexico, where for years irrigation has been taking more water out of the ground than precipitation puts back. In order to support the present economy in the future, says Trigg Twichell of Austin, Tex., survey district chief for the region, up to 7 million acre-feet, or 2.5 million gallons, of water will have to be imported every year. To make matters worse, the high evaporation rate from open reservoirs means that at least half of the water should be stored underground.

Besides scouring available data to see if the project is feasible at all, the Survey hopes to develop new ways of injecting water into the ground, of predicting sediment problems in recharge wells and of using sample analysis to predict the movements of injected water.

Success in the High Plains project, Twichell says, could make underground storage into "one of the most economically important techniques for water development and management to emerge in many years."

AGRICULTURE

Force field protects fruit trees

High-voltage electricity may help the nation's citrus growers protect fruit against freezing, according to George Yelenowsky and George Horanic, researchers with the U.S. Department of Agriculture in Orlando, Fla., who have tested the technique on lemons.

Six-month-old, succulent, rough lemon seedlings were exposed to subfreezing temperatures down to 13 degrees F. for 40 minutes. Unprotected seedlings were killed, whereas those planted in a two-million-volt electrostatic force field survived with no apparent damage.

HYDROLOGY

Water beneath Australia's desert

Australian oil drillers have found huge supplies of good-quality water under the desert near Alice Springs, Northern Territory, which could change the continent's dead heart into a major irrigation area.

Hydrologists believe that the water, which lies in two basins north and south of the town, could irrigate 105 million acres for 100 years. A Government consultant R. Perry, estimates that the north basin holds about one billion acre-feet of water, and that the southern deposit is even larger.

The flows were struck by teams from the Magellan Petroleum Corp., who were searching for oil and gas.