Committee on Metals in the Environment, and U.S. Borax. Among the 145 conference attendees were representatives of FDA, the Canadian government, various state and local water utilities, environmental agencies, energy utilities, and scientists from the United States, Taiwan, Mexico, Chile, Canada, Australia, and Europe.

A Win for Wetlands

On August 24, an interagency working group composed of nine federal agencies, including EPA, the Department of Agriculture, and the Army Corps of Engineers, announced a new wetlands initiative touted as fair, comprehensive, and ending years of gridlock.

"The new agreement is a significant advance in protecting American wetlands, which are currently being lost at a rate of nearly 300,000 acres per year," said EPA Administrator Carol Browner. "The agreement is fair to landowners at the same time that it protects our water quality and wildlife."

The interagency working group was formed in response to a request from seven U.S. senators that the White House take the lead in resolving the contentious wetlands issues that have been the heart of controversy for years. The interagency group has been meeting since June, hearing farmers, environmentalists, developers, and scientists.

"This wetlands policy is meaningful reform—for the environment and for the farmers and ranchers of America," said Agriculture Secretary Mike Espy. "It is a fair and flexible policy that simplifies the process of identifying wetlands and provides farmers a simpler method for identifying federal requirements for wetland conservation."

The new wetlands initiative includes more than 40 changes to current policy. Some parts of the plan will take effect over the next several months; other parts take the form of legislative recommendations for Congress as part of the reauthorization of the Clean Water Act, which will be addressed this fall. Specifics of the wetlands plan are:

- Close a loophole that allowed destructive activities such as draining to go unregulated,
- Establish a new appeals process so that farmers and landowners can seek review of permit decisions without going to court,
- Impose deadlines on permit decisions,
- Establish the Soil Conservation Service of the Department of Agriculture as the lead agency for wetland determinations on agricultural lands,
- Withdraw a proposed rule that would have left Alaskan wetlands unprotected,
- Increase emphasis on state, tribal, and local government roles, as well as voluntary wetlands protection programs with landowners.

The new initiative has been well received thus far. Gerald Digerness, president of the National Association of Conservation Districts and a dairy farmer, said, "After years of confusion and conflict regarding wetlands protection and regulation, American's conservation districts welcome what appears to be a fair, flexible, and technically feasible approach that recognizes the environmental, economic, and social benefits of these valuable resources."

Wetlands drying up. A new federal initiative would stem the current loss of nearly 300,000 acres per year.

Brain Food

Children are often told how important it is to eat their spinach and broccoli in order to get their vitamins. For pregnant women and women of childbearing age, the Food and Drug Administration will soon take that advice a step further when it begins fortifying the food supply with folic acid, a B-vitamin found in spinach, broccoli, and other foods, which could cut the rate of neural tube birth defects by 70% and significantly decrease the incidence of other birth defects.

"This is the most important medical finding of the 20th century," said Godfrey Oakley, director of the birth defects division at the U.S. Centers for Disease Control and Prevention in Atlanta, speaking of folic acid's role in preventing birth defects. "It's like the Salk vaccine—its that magnitude of importance," said Oakley.

The decision to fortify products including enriched flours, rice, and cornmeal was made in response to evidence showing that even women with well-balanced diets are not getting enough folic acid, which is broken down at an increased rate during pregnancy. Neural tube disorders, including spina bifida and anencephaly, occur 20–24 days after conception when tissues forming the neural tube (which gives rise to the brain and spinal cord) fail to close. Since many women may not even be aware of the pregnancy at this point, it is vital that they receive folic acid even before becoming pregnant. Folic acid has no effect after the defects have occurred.

The push for fortification of food with folic acid has been slowed somewhat by concerns that it can make detection of pernicious anemia, a rare blood disorder which can cause nerve and brain damage, more difficult. Scientists at CDC have responded that these concerns can be alleviated by controlling the amounts given.

Not only does folic acid prevent neural tube disorders, it may also protect against potential harmful side effects to children from *in utero* exposure to methanol. Folic acid is critical in the detoxification of methanol, which is currently being considered by government and industry as an alternative fuel. In cases of folic acid deficiency, formate, a metabolite of methanol, accumulates in the blood, creating a pH imbalance which can cause toxicity [see Forum, *EHP* 101(2)].

Milwaukee's Water Woes

Anyone who lives in metropolitan Milwaukee knows what contaminated water can do to a community. What was probably one of the world's most massive documented outbreaks of waterborne illness occurred this spring when cryptosporidia,

an organism that causes incapacitating diarrhea in humans, found its way into Milwaukee's water system. Ironically, the outbreak may have come about in part because of attempts by the city to improve the water supply.

An EPA assay found an unacceptably high level of lead in the water earlier in the year and, in an effort to eliminate the lead, Milwaukee's water department was trying a new filtering chemical, aluminum hydroxychloride, in place of alum. Alum, although it is the standard filtering chemical used, can cause lead to leach from pipes. Milwaukee's water and health authorities think that climatic variations, including spring runoff, wind, and temperature, combined with Lake Michigan's usual north-to-south current, may have swept a plume of sediment—and a bolus of cryptosporidia—toward the water intake, where the new filtering chemical may have affected the pH of the water, creating a more amenable environment for the virus.

For the first three weeks in April, the city cautioned its one million citizens not to drink the city's water, which is drawn from Lake Michigan and treated in municipal plants. The warning came too late for many, who were afflicted by severe diarrhea that lasted a week or more. Even after the population stopped using the water, the parasite continued to spread by its secondary, fecal–oral, path with new cases continuing to appear well into May.

The city's department of health estimates that more than 400,000 person-days of work were lost. More than 4000 people required hospitalization, and some of those infected died. "Cryptosporidia kills by rapid dehydration," says Dennis Juranek, chief of epidemiology in the parasitic diseases branch at the Centers for Disease Control and Prevention. "Patients can lose 10 or 20 liters of fluid a day."

With no preventive vaccine and no effective drug therapy, those stricken could only wait out the infection, drinking fluids, and trying to be punctilious about hygiene. Although cryptosporidial infections do no lasting harm to people in good health, they can be fatal to those who are immunocompromised, such as cancer patients undergoing chemotherapy, organ transplant recipients taking antirejection medication, or patients with AIDS or other conditions that suppress the immune response.

While it's certain that some died from the infection, precise mortality figures won't be available until some time next year, according to Wisconsin state epidemiologist Jeffrey Davis. "When the parasite was found in a person who had an underlying disease, it's hard to determine whether death came as a direct result of cryptosporidia or from other causes," Davis said.

Months after the water system was flushed and cleansed with high concentrations of chlorine, Milwaukee's city council is still assessing the epidemic, spending over a quarter million dollars on consultants and studies to learn what went wrong and how to prevent recurrences.

Published reports blame the epidemic on runoff from Wisconsin dairy farms, sweeping cryptosporidia's sporelike oocytes into the rivers that flow eastward into Lake Michigan, from which Milwaukee draws its water. Urban-versus-rural feeling has begun to stir between prosperous Milwaukee and the rural dairy farmers, some of whom say the city is blaming them unfairly and underestimating their contribution to the state's economy. But the simplistic explanation of dairy farm runoff may tell only part of the story.

Cattle aren't the only animals that harbor cryptosporidia, says Juranek. Deer and elk, among other mammals that live along the rivers in the watershed, could have been the source of the parasite. Meatpacking plants in urban Milwaukee might also have been responsible, with waste running untreated into storm sewers. Furthermore, the parasite, which can survive outside a living host for 6–12 months if the environment is moist, may hide in the sediment of Lake Michigan.

The water-intake for the water plant affected by cryptosporidia is located about 3/4 miles offshore, just south of the point where the river empties into the lake. Beach samples taken along the shore show that a plume of turbid river sediment spreads into the lake. The city's careful water-treatment procedures probably kept cryptosporidia to a minimum. However, cases that occurred in the past may have been misdiagnosed.

European Organization for Research and Treatment of Cancer

U.S. National Cancer Institute

The European Organization for Research and Treatment of Cancer (EORTC) and the U.S. National Cancer Institute (NCI) are offering an exchange program to enable cancer researchers to work at NCI or EORTC-related institutions for one to three years.

General Conditions

Awardees will receive an annual subsistence allowance of $30,000. Half of this amount will be provided by U.S. sources, the remainder by European sources.

European awardees will receive the U.S. contribution either from the NCI or from their extramural host institution. The European contribution of the exchangeship will be provided either by the scientist's home institution or by a European granting agency.

For American awardees, the host institution must be affiliated with the EORTC.

Documentation

The following documents are required, in English, from all applicants:

- Completed application form.
- Description of the research to be undertaken, not to exceed three typewritten pages.
- Letter of invitation from the prospective host.
- Agreement to release the applicant from the home institution for the duration of the exchangeship.
- Assurance of intention to return to the home institution at the end of the exchangeship.
- Statement concerning the provision of 50 percent of financial support by European sources. Non-EORTC member country candidates must continue at full salary at the home institution for the duration of the exchangeship.
- Three letters of recommendation mailed directly to the NCI Liaison Office by the recommending individuals.

For More Information Contact:

EORTC/NCI Exchange Program
NCI Liaison Office
83, Avenue E. Mounier
1200 Brussels, Belgium
Telephone: (32) (2) 772-22-17
Telefax: (32) (2) 770-47-54

EXCHANGE PROGRAM