environment and accumulates in organisms. The guidelines also place a heavier burden on industry to prove that a chemical is safe, whether it's a new compound or one that has been on the market for decades. "Today, substances are treated as if they were suspects in court: They are regarded as innocent until their harm is proven beyond reasonable doubt," says pollutants expert Bo Wahlström, a senior scientific adviser at the United Nations Environment Programme in Switzerland. Sweden, he points out, "wants to change this by proposing that chemicals prove their innocence before they are marketed."

In January, the administration of Prime Minister Göran Persson will present the guidelines to the Swedish parliament, which is widely expected to approve the new chemical policy. But the guidelines could have an impact far beyond Sweden. On 18 and 19 December, the European Union's (E.U.'s) environmental ministers will meet to begin planning a new pan-European chemical policy. To date the E.U. has promoted the risk-analysis principle, meaning that a chemical must be proven harmful to be banned from use. But Sweden will be in a strong position to argue for its approach, which is grounded in the so-called precautionary principle, because Sweden assumes the rotating E.U. presidency in January. Although Swedish environmental minister Kjell Larsson insists he will not impose his country's cautious stance upon his E.U. colleagues, he says Sweden will place a high priority on bringing a new E.U.-wide chemical policy into force during its presidency.

Established by the government in April 1999, the Swedish Chemicals Committee, a 15-member panel composed of representatives from government, industry, and academia, heard testimony from scientific experts before drafting its report highlighting the dangers posed by chemicals that linger in the environment and accumulate in bodily tissues. A classic example of this threat is polychlorinated biphenyls (PCBs), a family of compounds used for insulating electrical lines. In 1971, Sweden was among the first countries to ban PCBs after they were linked to reproductive problems in eagles and seals that preyed upon PCB-tainted fish in the Baltic Sea. But the report goes a step further, arguing that a chemical need not be proven toxic—as PCBs are—to be drummed out of commerce: It need only be proven persistent and bioaccumulative. If a compound meets these two criteria, "we can be pretty sure that it will also be harmful in the long run," says environmental chemist Bo Jansson of the Institute of Applied Environmental Research at Stockholm University.

Getting the lead out. Proposed Swedish guidelines would drum lead out of commerce, forcing the Orrefors Kosta Boda glassworks to change its time-honored recipe.

The new guidelines call for banning from commerce any compound that has a half-life of more than 8 weeks in tests simulating an aqueous environment and is 2000 times more likely to accumulate in fish tissue than in seawater—a standard measure of biological uptake. The panel also calls on the government to hold all 100,000-odd chemicals in the European Inventory of Existing Commercial Chemical Substances to the same standards as new chemicals entering the market. Currently, only about 1 in 10 chemicals now in commerce has been tested for persistence and bioaccumulation. The onus will fall on companies that market products containing these chemicals. "We believe that [the chemical industry] should be carrying out the testing," says committee chair Arne Kardell, former director-general of the Swedish National Food Administration. According to Kardell's panel, the government should mandate that the most abundant chemicals—the 2500 or so that are imported or produced at a level of 1000 tons or more each year—be tested for persistence and bioaccumulation by 2005. Less used chemicals would have an additional 5-year grace period. Any chemical that survives this testing must run the standard gauntlet of toxicology tests.

Industry can see the writing on the wall. Even before the committee got going, the International Council of Chemical Associations launched a program in 1998 in which, as a first step, participating companies share the costs of testing the 1000 most commonly used chemicals for persistence, bioaccumulation, and toxicity. The companies are footing the testing bill—as much as $220,000 per chemical—to "gain

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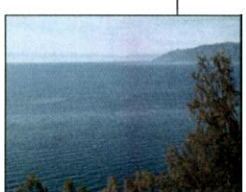
ScienceScope

Global Vision Australia's national research agency, CSIRO, has a new chief. Metallurgist Geoff Garrett, currently head of South Africa's science agency, will succeed Malcolm McIntosh, who died this year.

Garrett says he will put a priority on expanding the reach of CSIRO's $450 million research program by forging alliances with multinational companies and sister institutes in other nations. Such partnerships could bring a particular payoff in technology transfer to industry, as "there are simply not enough large Australian companies to take advantage of what CSIRO has to offer," says acting CEO Colin Adam.

Garrett also takes a dim view of suggestions to break up CSIRO. The institute employs 6700 people and tackles everything from running the Southern Hemisphere's largest radio telescope to developing new mining and farming techniques. Keeping CSIRO intact, he says, will be essential to producing the multidisciplinary innovations—such as new bioinformatics software—that will help Australia keep pace in the new global economy.

Microbes for Peace Former Soviet bioweapons researchers are teaming up with a young U.S. biotech firm to hunt for exotic organisms in Russia. Fueled by $1 million in start-up money from the U.S. Department of Energy (DOE), the partners will set up the Ecological Biotrade Center to scour Russian ecosystems for interesting organisms in such locations as Lake Baikal (right), the Volga River, and the Kamchatka Peninsula. The players include Diversa Corp. of San Diego, the Institute of the Biochemistry and Physiology of Microorganisms in Pushchino, south of Moscow, and three other Russian institutes. Diversa, known for collecting the DNA of a heat-tolerant microbe found in a hot spring at Yellowstone National Park, has sent or plans to send bioprospectors to Alaska, Australia, Bermuda, Costa Rica, Iceland, Indonesia, and Mexico. The potential applications span everything from pharmaceuticals, to agriculture, to industrial chemistry, says spokesperson Hillary Theakston. DOE's William Toth says the department wants to keep potential bioweapons experts employed in peaceful work and help them find a sustainable source of income. The work will start next month.



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