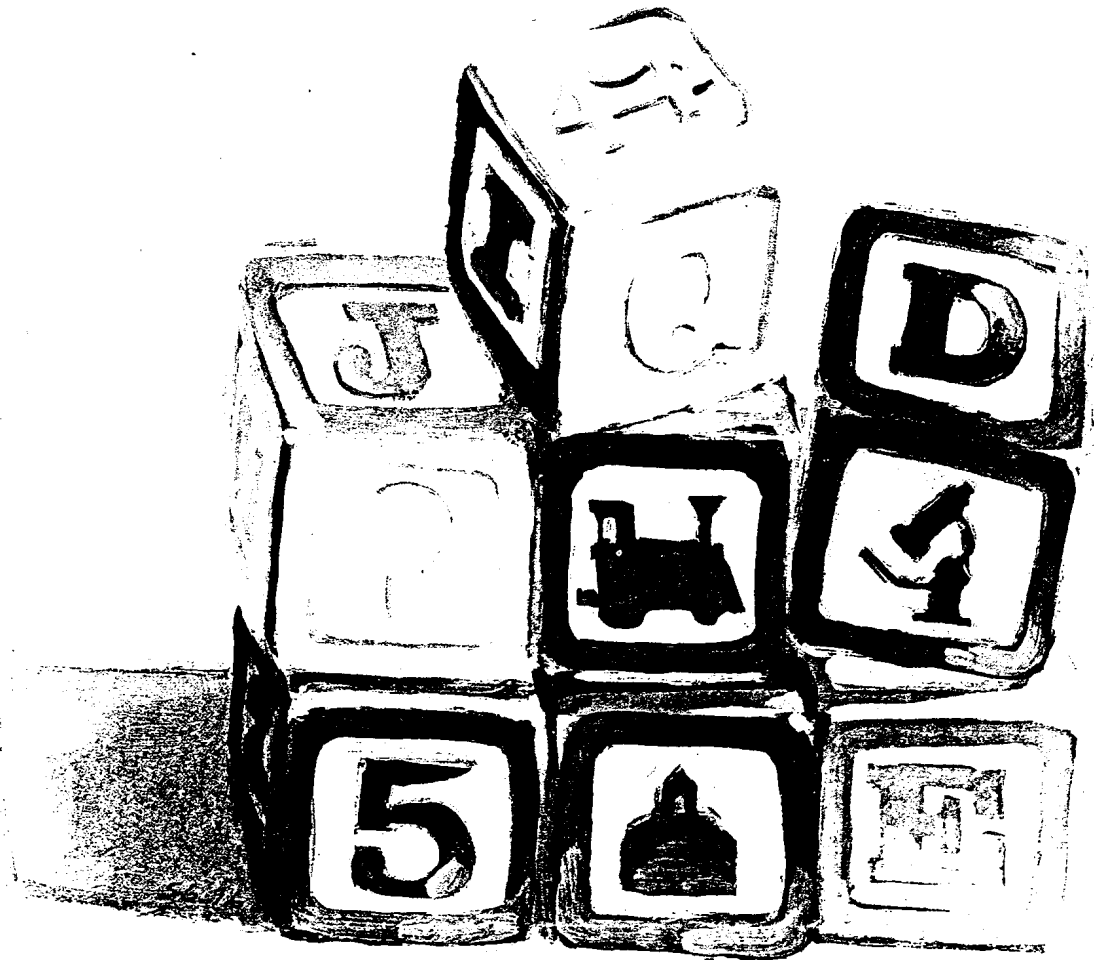


# Technology Review

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

MAY/JUNE 1996

\$3.75/CANADA \$4.95



*Lester Thurow on*  
INVESTING IN THE  
**BUILDING BLOCKS**  
OF A HEALTHY ECONOMY



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# First Line

## TEN YEARS AFTER

*Our leaders  
can prevent another  
Chernobyl only if they  
go beyond talk.*

On April 26, the world commemorates the tenth anniversary of the worst nuclear accident in history. On that day in 1986, a violent explosion at the Chernobyl Nuclear Power Plant in Ukraine completely destroyed Unit 4, spreading radioactive contamination throughout Europe.

The word "Chernobyl" has since come to symbolize the catastrophic potential of blind technological progress. According to a recent report of the U.N. secretary-general, some 160,000 square kilometers—an area the size of England, Wales, and Northern Ireland combined—have been heavily contaminated by the disaster, and an estimated 9 million people affected. Almost 400,000 people have been forced to leave their homes, many never to return. And serious health consequences continue to be observed, including a dramatic rise in thyroid cancers in children.

One week before the anniversary of the Chernobyl accident (right around the time you receive this magazine), Presidents Clinton, Yeltsin, and the G-7 leaders are scheduled to gather in Moscow for an unprecedented summit on nuclear safety and non-proliferation. Both the anniversary of Chernobyl and the Nuclear Safety Summit should prompt world leaders to take the substantive steps necessary to avert further nuclear disasters.

Such steps are essential because 10 years after Chernobyl, 67 Soviet-designed nuclear reactors continue to run in Eastern Europe and the former Soviet Union, and at least 26 of them—RBMK (Chernobyl-type) reactors and VVER-440 Model 230s—are known to pose serious safety risks that cannot be "fixed" with technical upgrades. RBMKs have an irreparable design flaw that makes their operation unstable at low power, or if coolant is lost, and allows for a runaway power surge like the one that caused the Chernobyl explosion. RBMKs also use a graphite moderator, which can burn, to facilitate the nuclear chain reaction. Neither reactor type has Western-style secondary containment that would prevent the release of radioactivity in the event of an accident. Both reactor designs also lack adequate emergency core cooling systems to prevent overheating that could lead to a meltdown. Adding new containment and emergency core cooling systems to either model would be finan-

cially prohibitive and, according to many nuclear engineers, technically infeasible.

Despite the inherent nature of these problems, most of the international nuclear-safety assistance in the region since Chernobyl has been devoted to short-term technical upgrades designed to improve fire protection, quality of training of plant personnel, and instrumentation and control systems. Although better than nothing, these measures are still akin to putting a Band-Aid over a compound fracture.

In 1992, the G-7 pledged at their yearly economic summit to work to shut down the most dangerous reactors by the year 2000, and they commissioned a study by the World Bank, the European Bank for Reconstruction and Development, and the International Atomic Energy Agency to look at alternatives. This group concluded in its June 1993 report that it would be possible to meet electricity demand in Eastern Europe and the former Soviet Union while closing the higher-risk plants by the mid-1990s. Yet not one has been permanently shut down.

The bottom line is that without sufficient financial commitment from the West for developing replacement power to meet these countries' energy needs, any debate on closing these facilities is moot. While the price tag to replace the unsafe plants will be substantial in the short run, prevention of future accidents will be well worth the investment.

Unfortunately, the primary reactor-safety item on the Nuclear Safety Summit

agenda appears to be ratification of the International Convention on Nuclear Safety. This treaty, the result of three years of negotiations, is all rhetoric—exhorting individual countries to establish their own regulations—and has no teeth. It does not require phaseout of nuclear plants with the highest accident risks, it does not establish substantive technical or procedural standards by which nuclear installations should be evaluated, and it does not provide a framework for independent third-party oversight of nuclear facilities.

Our leaders can do a lot better. Specifically, the Natural Resources Defense Council, in cooperation with Alexei Yablokov, chair of Russia's Ecological Security Commission, has assembled a distinguished international task force of nongovernmental nuclear and energy experts to issue recommendations to the G-7 and Russian leaders that go beyond the agenda of the Nuclear Safety Summit and provide substance. Specifically, the task force recommends that the G-7 and Russia: • Identify, on an urgent basis, power-replacement options for each unsafe nuclear plant in Eastern Europe and the former Soviet Union. • Create a multilateral Sustainable Energy Revolving Fund, capitalized at a level of \$10 billion (largely by G-7 members). • Prioritize the most dangerous reactors for shutdown by no later than the end of 1996, thus establishing the order in which countries would receive assistance through the fund. • Provide technical and financial support for establishing regulatory structures and markets capable of encouraging a wide range of energy alternatives.

The task force is building on a recent and important precedent for Western intervention and funding. A December 1995 agreement between the G-7 and Ukraine, regarding the potential shutdown of the two remaining units at Chernobyl in exchange for replacement power, at least establishes a principle that could ultimately be extended to all the other unsafe reactors in the region. Acting on the task force's recommendations will be a further critical step in the right direction. ■

—THOMAS B. COCHRAN  
AND MIRIAM B. BOWLING

*The authors are senior scientist and research associate, respectively, at the Natural Resources Defense Council in Washington, D.C.*

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