ARMENIA'S CHOICE

By ASTGHIK VARDANIAN

Photos by JERRY BERNDT

We no longer hear children's hoorays when the electricity goes on—their cheers are once again reserved for fireworks and Christmas trees.

For six years Armenians lived in the semi-darkness of the Middle Ages. Beginning in 1989, these 3.7 million people in the southern Caucasus survived without adequate heat, transportation, or medical care. There were only endless candlelit evenings with no television or music. "You lived in the Sabbath all year long," a Jewish friend commented.

The crisis was precipitated by a devastating earthquake and the closure of Armenia's only nuclear power plant. It was compounded by the breakup of the Soviet Union and an economic blockade that cut the country off from other energy sources. The power shortage left the post-Soviet government with a stark choice: nuclear power or continued crisis.

During Armenia's long energy crisis, trolleys were few, erratic, and packed.

For those living through the dark years, the risks associated with nuclear power were overshadowed by the hardship of this period. The reopening of the power plant, which occurred last fall, could never be merely a technical question.

The earthquake of December 7, 1988, measured 6.7 on the Richter scale. It took the lives of 30,000 people, leveled two cities and 55 villages, and destroyed one-tenth of the country's industry. It also shook faith in the safety of Armenia's only nuclear power plant, Medzamor, which sits in an unsafe seismic zone 30 miles south of the capital of Yerevan and 60 miles from where the quake hit.

The plant, which consists of two VVER 440/270 reactors (modified from VVER 440/230s), had one of the best safety records of Soviet-style reactors. Unit 1 came on line in 1976, and Unit 2 in 1980. They provided Armenia with a surplus of energy, which was exported to other parts of the Soviet Union and Turkey.

Even though the plant experienced no damage and was designed to withstand earthquakes of up to 8.0, a large movement led by the country's Green Union called for its closure amid safety concerns and anti-Soviet sentiment. Armenia's growing self-determination movement focused on the potentially risky power plant as a symbol of Soviet domination and exploitation.

After heated disputes among politicians, scientists, and the Greens, the Supreme Soviet, the highest government body in the then-Soviet republic of Armenia, agreed to shut it

down. Between January and March 1989, the two reactors went off line. Nearly 40 percent of the country's total energy supply was no longer available.

The breakup of the Soviet Union, following closely on the heels of the plant closure, further destabilized the country. While many problems were common to all former Soviet republics, the era of independence began particularly unfavorably for Armenia, the smallest among the newly independent nations. Since 1989 Armenia has been locked in a bloody dispute with neighboring Azerbaijan over the territory of Nagorno-Karabakh, an enclave of Armenia deemed part of Azerbaijan by Josef Stalin in 1922. The ongoing war monopolized the human and financial resources necessary to build an independent post-Soviet infrastructure.

This once scientifically and culturally advanced country also was subjected to a total blockade related to the war by Azerbaijan and Turkey. Armenia's only remaining connection to the outside world was through its northern neighbor, Georgia. But during the fighting, the railway lines and gas pipelines that pass through Georgia were permanently destroyed by Azeris living in that country. Georgia, which did not investigate this terrorism, was believed to be pilfering the Armenian share of gas sent from Turkmenistan. With barricades on all sides, even the delivery of humanitarian aid, now completely dependent on air shipment, was slowed.

Six years

And so the crisis began. Industry slowed, factories shut down, and office workers were laid off. Even ambulance service was halted because of a lack of gasoline. People passed the winters in their apartments, where room temperatures hovered close to freezing. Deprived of their jobs, they had only two reasons to go out—to get fuel and food.

Under the blockade, Armenia could provide for only one-fourth of its daily bread. This brought long and excruciating bread lines, and often the military was required to keep order. Eventually a voucher rationing system was enforced, providing a daily ration of 8.8 ounces per person. "Every day pupils in the school are fainting," said Hasmik Sargissyan, the director of studies at a secondary school in Yerevan. "The teachers used to keep sand-

The photos on these pages, taken in 1994, suggest the wrenching changes caused by a lack of electricity. Here, Armenians wait for kerosene.

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wiches in their bags for emergency cases."

During this period people received only one to two hours of electricity a day, and their lives were defined by it. "We had to manage to do everything in two hours—to cook, to bathe, to wash, to watch TV," said Theresa Arazian, a professor of musicology at the Yerevan Conservatory. The rest of the time was spent planning how to get candles and the fuel to fire wood stoves and kerosene lamps.

After the first two years, the government became more efficient in its use of energy and more became available for necessities including hospitals and factories. But people rigged up cables known as "left lines" to siphon off electricity from these high-priority users to augment their two-hours-a-day allowance. Some even attached the left lines to unused metal bed frames, heating them like giant radiators. According to Armenergo, the government's electricity agency, 40 percent of the electricity generated was used illegally. People joked that Armenia's President Levon Ter-Petrosian promised to provide the whole nation with "left lines."

The only outside help with heat came from a U.S. humanitarian program called "Winter Warmth," which provided kerosene to Armenia from 1992 to 1995. Some people, however, were reluctant to use this fuel, as Armenian doctors warned that the fumes could be harmful to children.

Many people left the country. "I couldn't survive another winter in Armenia. This was sheer hell," said David Babayan, a writer and actor who immigrated to Moscow. According to the U.N. Development Program, 676,000 people—or about one fifth of the population—left during this period, many settling in Russia, the United States, or Israel. Much of the country's professional and artistic elite were part of this exodus.

But millions of others remained.

The woodcutters

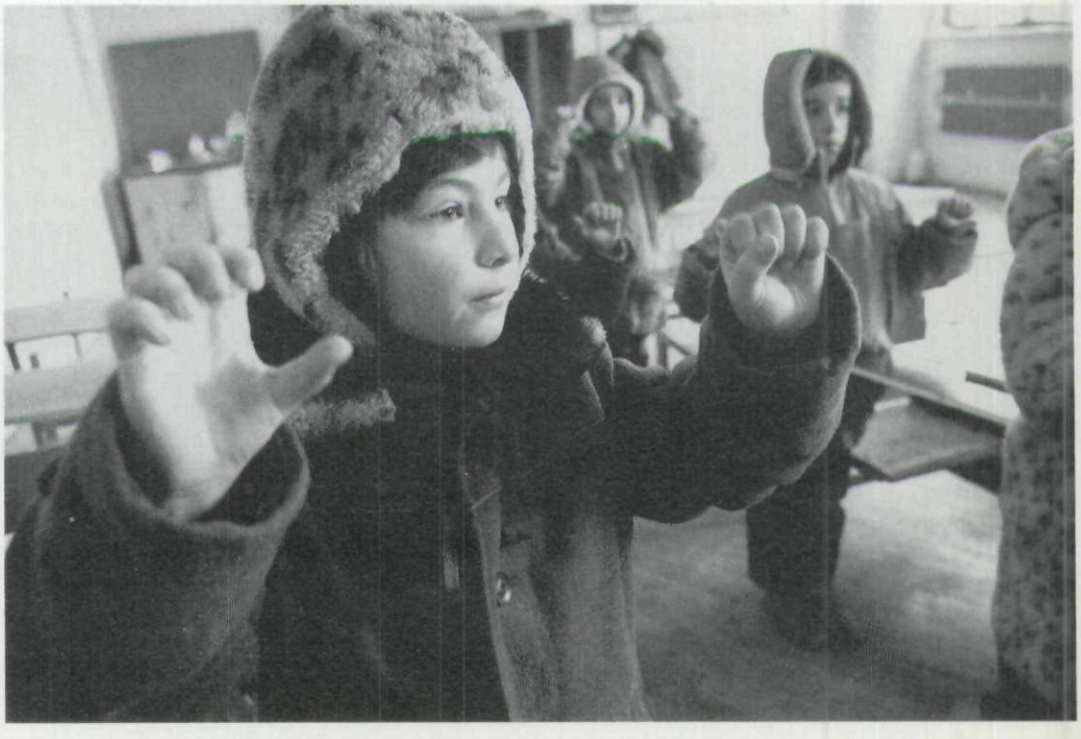
At first chopping down city trees for fuel was considered shameful, and the main concern of woodcutters was to go unnoticed. At night, armed with axes and saws, they chopped the trees they had targeted during the day.

Very soon it was commonplace and no longer considered a dishonorable deed. The soot billowing from round holes in apartment windows was a sign of success. "I can plant trees in the spring, but I can't bring back my kids," said my neighbor, the father of five children.

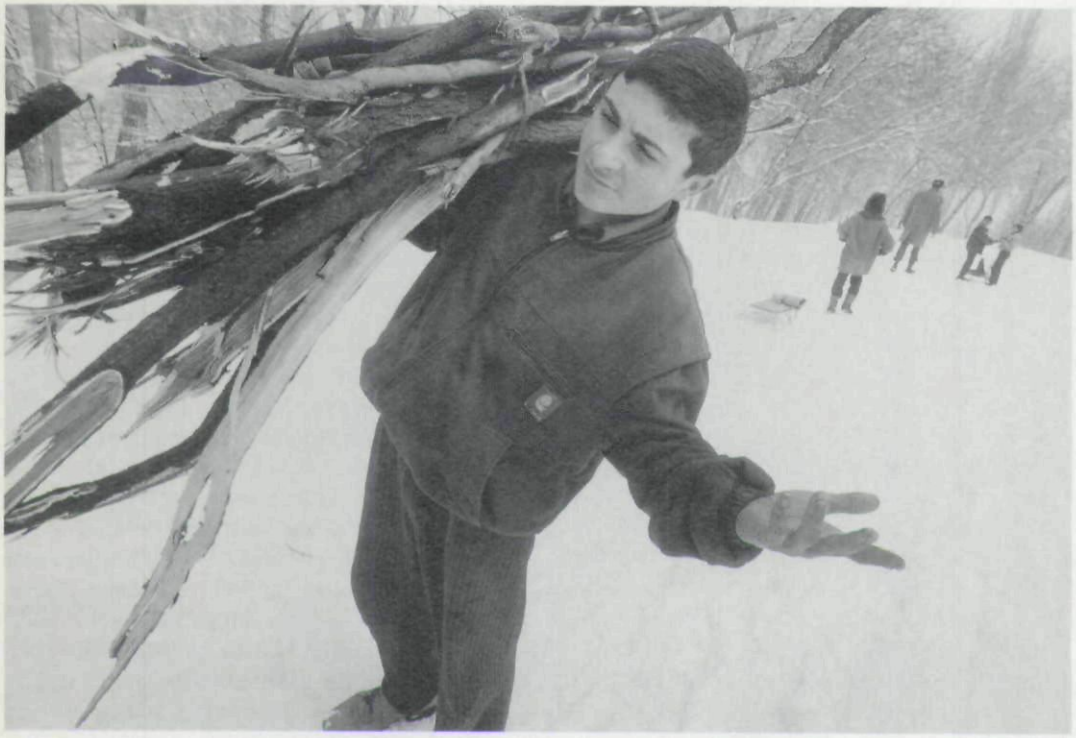
People started with the trees in their gardens and ended up with those decorating the House of Parliament. The Ministry of Ecology estimates that 800,000 trees were chopped down throughout the country in the first two winters. After intensive woodcutting the cities seemed bald. "Good bye, and good luck in wood cutting," a television showman would say at the end of his program, as wood became harder and harder to find. Today there is a memorial in Yerevan, a sculpture of a tree, erected as a reminder of the "Genocide of Nature."

Getting around

The streets of Yerevan were filled with pedestrians. People walked and drove by instinct,



With the temperature below freezing, these schoolchildren stood for hand-warming exercises every 15 minutes.



Harvesting firewood from the trees in a Yerevan park.

without the aid of street or traffic lights, which were turned on for only two days a year at Christmas time.

The energy shortage also paralyzed public transportation. Often trolleys would be stalled on hills when the electricity was cut off. At these times male passengers would get out and push the trolley to the top, and then, like kids on a roller coaster, jump back in to enjoy the ride. When the rare trolley did get electricity, it carried many times more people than it could comfortably hold. And trolley doors never closed as dozens of people hung out of them in acrobatic positions. Teenagers took to hanging from the emergency staircases.

Others chose to walk rather than stand in claustrophobic trolleys. With many extra pedestrians came extra falls on icy sidewalks. A common joke in Yerevan was that Armenians had become better at falling than Charlie Chaplin or Buster Keaton.

At the zoo

It was a sad day at the Yerevan Zoo when its only elephant, Vova, died in 1993. "The specialists failed to give a precise cause—cold, malnutrition, bad living conditions," said Hripsime Brutian of the zoo's publicity department.

The inhabitants of the zoo were kept in their winter houses, without electricity. "The animals have been in complete darkness for five months and will live [this way] another month until the winter is over," Karo Mandalyan, the zoo's manager, explained. Members of the zoo's staff did what they could. Many brought food from their homes. The snake keeper even took the snakes in their glass containers to his apartment where he could keep them warm with a wood heater. When the elephant died, it was used to feed the other animals.

"Only this winter, we lost 64 big and small animals: zebras, tigers, birds, wolves, and sheep—all from cold and hunger," said the manager. "Every morning I come to the zoo with the fear in my heart to see another dead animal." A visiting journalist filming the zoo for Germany's Stern Television said, "Damn, it was a concentration camp for animals."

A decision

As the energy crisis lingered with no end in sight, the Armenian government announced in April 1993 that it would restart one of the two units at Medzamor as the only viable short-term solution.

Armenian citizens were fully behind the decision, but they were alone in this view. All of the country's neighbors held protests, questioning the safety of the reactor. Turkey, which supported Azerbaijan in its war with Armenia, even offered at one point to lift its blockade if Armenia would keep the reactor off line.

The West also opposed Armenia's decision, and from the start refused to provide technical assistance or guidance for the plant's reactivation, arguing that because the plant was in a zone of high seismic activity, it could never meet safety standards. "We wanted to do all we could to prevent its restart," said a repre-

Togetherness: Only the kitchen could be kept warm.

sentative of the European Bank for Reconstruction and Development's Nuclear Safety Account (*International Herald Tribune*, October 25, 1995).

Armenian officials attributed Western objections to their interest in securing contracts for new power plants for Western businesses. "This is a struggle for the market," Vanik Nersisyan, deputy head of Armenia's Department of Atomic Energy, told the *International Herald Tribune*. "This is an issue of the employment of the Western population." Compared to building new plants, little money could be made in assisting in the upgrade of Medzamor. Armenia was not eligible for the aid provided by the Nuclear Safety Account, which was designated for the 11 other VVERs currently operating in Bulgaria and Russia.

Spurned by Western authorities, the Armenian government turned to Russia for help. Russia provided Armenia with loans to upgrade the plant, including the addition of reinforcements against seismic activity and the construction of a new cooling-water lake.

When it became clear that Armenia would go ahead with or without Western assistance, equipment also was provided by France, Germany, Bulgaria, and other European countries. According to the April 6, 1996, *New Scientist*, some countries were changing their stand on even the more dangerous RBMK reactors like those at Chernobyl. Again, some interpreted the change as a means of helping Western businesses benefit in the post-Soviet marketplace. "The closure of the reactors would mean that Western nuclear corporations would lose potentially valuable contracts for fitting safety equipment," said German Environment Minister Angela Merkel.

Between 1994 and 1995, more than 500 tons of equipment was airlifted to Medzamor, and 800 upgrades were performed to improve the reactor's safety. After frequently sending World Association of Nuclear Operators and International Atomic Energy Agency (IAEA) inspectors to Medzamor, the IAEA concluded in 1994 that "the plant is safe and there are no principal obstacles for the restart."

Ironically, when Medzamor's Unit 2 was turned on in November 5, 1995, it was greeted with the same euphoria that attended the decision to turn it off in 1989. The plant ran at 92 percent capacity during the winter, according to the government's nuclear regulatory agency. It produces enough electricity to satisfy 25 percent of the needs of the country's population and industry.

Armenians are gradually recovering from the dark experience of the past years. They are coming round from the absurdity under which they lived, and getting back to a normal life—or as normal as life can be in the midst of war and a blockade. Today in Armenia we no longer hear children's hoorays when electricity is turned on. It is an accepted part of life, and these cheers are once again reserved for fireworks and Christmas trees.

But the recovery was built on nuclear energy—a necessary short-term compromise for a country that has no other reliable source of power available. The country's government and scientists continue to look into alternatives including natural gas, oil, solar, and hydroelectric energy, but nuclear power remains most viable. The government is even considering restarting the older Unit 1 at Medzamor and commissioning a new plant. But to implement these more ambitious nuclear alternatives safely will require Western technical help—and political will. ■