

From New Delhi by Susan Maitra

Nuclear power: The challenge grows

Chernobyl is being used to mobilize anti-nuclear activists in India, too, but the program is riddled with its own problems.

Nuclear power is the only source of power available in the future, and we in India must not miss this new industrial revolution," Dr. Raja Ramanna, Indian Atomic Energy Commission chairman and secretary of the Department of Atomic Energy (DAE), stated recently. "For if we do, we are bound to lead ourselves to total economic disaster."

Ramanna was speaking at the inauguration of a new DAE regional center in Bangalore, Karnataka, on Sept. 10. Anti-nuclear activists have targeted the state since its 10-year-old demand for a nuclear power plant to meet crippling power shortages was granted.

In India, the imperative for nuclear power couldn't be greater. This nation of 750 million presently generates a pitiful 45 gigawatts of electrical power—barely 150 units per capita, compared to 2,500 for even the least developed nation. Coal, now the mainstay, is of low quality and highly polluting, in addition to the fact that its increased use for power generation poses nightmarish problems for the already overburdened railway system and a low-productivity mining sector. India's only long-term option is nuclear power. From this perspective, the present plan to generate 10 gigawatts, or 10% of total power, with nuclear plants by the year 2000, is, as Prime Minister Rajiv Gandhi noted, "still too low."

But even this conservative program is now under pressure. As everywhere, the fallout from Chernobyl has helped boost a coalition of anti-tech-

nology, anti-nuclear activists and peaceniks against nuclear energy. Typical is the surfacing of a Committee for a Sane Nuclear Policy, with former Supreme Court Justice B. R. Krishna Iyer, a mouthpiece of the Soviet-inspired peace lobby, on stage to insist that Chernobyl proved "beyond reasonable doubt" that even peaceful uses of atomic power are dangerous.

By itself, this line wouldn't go far. The trouble is that it takes place in the context of growing impatience over the DAE's inability to deliver results commensurate with the time and money invested.

The prime minister himself gave voice to the misgivings last December when he inaugurated the fast-breeder test reactor in Kalpakkam. Mr. Gandhi had praise for DAE's ability to master and even innovate the full nuclear fuel-cycle technology under difficult circumstances of boycott and pressure. "Yet," he added, "I sometimes feel that, though we have come a long way from the Rajasthan power project [RAPP] to the Madras Power Project [MAPP], one foot is still left behind."

The RAPP was the first nuclear plant India completed independently after the Canadians left summarily in 1974. The MAPP is India's first fully indigenously-built station, completed in 1984.

The prime minister referred to the undependability of the nuclear power supply, citing frequent outages, slow rectification of faults, inefficient management and inventory systems, and delays in standardization.

Every indication is that even the current low targets for Indian nuclear are receding into the distant future. In the last several years, nuclear power has slipped from 3% to just 2% of total power. Reaching 10% by 2000 depends on being able to design and commission the first two of a series of 500-megawatt reactors by 1995—and another two each year thereafter, in addition to installing the smaller 235 megawatt reactors at the rate of one per year starting next year.

The first two 500-megawatt reactors need about \$400 million over the next four years, but only \$180 million has been allocated. The rest is to be raised in the capital markets, a prospect that DAE's time and cost overruns could dim.

This year, Unit 1 of MAPP had to be shut down for four full months of its second year of life. Just after it was brought back on line, a snag in the fuel-rod assembly transport system of Unit 2 brought it to a grinding halt. When the outages will begin to devour the 20% cost advantage MAPP now enjoys over normal electricity in Tamil Nadu, is a point of concern.

Then, RAPP's Unit 1 put the costly prospect of nuclear plant decommissioning on the immediate agenda. More than four years of effort to repair the malfunctioning reactor's cracked endshield has been all but given up. In the 10 years since it came on line in 1972, RAPP-1 was shut down more than 250 times due to such things as failure of the rotor blades on the imported turbo-generator, heavy-water leakage, and labor trouble.

Further, work on the two new reactors at Narora has again been hit with delays in supply of equipment and materials, this time by at least another 15 months. The heavy-water production program is still riddled with problems.