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From New Delhi by Paul Zykofsky

India reaches nuclear milestone

"We are to make the desert bloom," says Mrs. Gandhi, as India becomes self-sufficient in fission plant production.

With the dedication by Prime Minister Indira Gandhi of Unit I of the Madras Atomic Power Project (MAPP-I) at Kalpakkam on July 23, India has now joined the ranks of nations with the capability to design and build nuclear power units on its own. The only others are the United States, the Soviet Union, Great Britain, France, West Germany, Canada, Sweden, and Japan. The 235-megawatt heavy water reactor marks a milestone for the people of India and for the developing sector as a whole.

"Our science, particularly nuclear science, is dedicated to development, the achievement of freedom from want, and the provision of essentials and an honorable life for the masses," Prime Minister Gandhi declared. "We are to make the deserts bloom and not make the world a desert. This applies to our nuclear science, indeed to all the sciences."

MAPP-I is the third plant in India's program which proposes to have nuclear power supply a minimum of about 10 percent of total electricity—or 10,000 megawatts installed capacity—by the year 2000.

Unlike the previous two plants, at Tarapur and the Rajasthan Atomic Power Project, MAPP-I is domestically built, and thus is the first nuclear reactor in India that is not under external safeguards and restrictions. More than 85 percent of the installation, including all major and essential items of design and equipment, was produced domestically.

Particularly important, the 250 tons of heavy water required for the startup of the reactor was produced in India, overcoming what has been one of the biggest hurdles for India.

Industrial "firsts" for India include: the 235-megawatt steam turbine and generator, manufactured by Bharat Heavy Electricals, Ltd., a public sector firm; the first fully prestressed concrete nuclear containment structure in India; and a sea water intake system, with its 480-meter underground tunnel to bring in cooling water.

When Unit II is completed later next year, the Kalpakkam station will deliver 470,000 kilowatts of electricity to Tamil Nadu and the other southern states at a cost expected to be as low as 29 paise (about 3 cents) per kilowatt hour. The completion of Unit I now is especially timely since Tamil Nadu, which is otherwise almost totally dependent on monsoon rainfall to power hydroelectric plants, has faced the failure of three successive monsoons.

For India as a whole, nuclear power has become vital: many factories operate at low capacity due to power outages, while much of the nation's transport system is unnecessarily tied up carrying millions of tons of coal from mine to power plant.

Dr. Raja Ramanna, the director of Bhabha Atomic Research Center (BARC), emphasized at the dedication that the commissioning of MAPP-I "starts a series of new events which, over the next few years, will fulfill the vision of Homi Bhabha [the first head of India's Atomic Energy Commission and the architect of the nation's nuclear power program] in obtaining self-sufficiency in nuclear power."

MAPP-I sets the stage for the next major step: development of the fuel-producing fast breeder reactor technology, which will allow India to tap the nation's enormous reserves of thorium.

Next year, the Fast Breeder Test Reactor, now under construction at the Reactor Research Center at Kalpakkam, will come on line.

India's nuclear program has had to break through obstruction at home and abroad, from outright "greenies" to closet Malthusians parading as opponents of nuclear weapons proliferation. These obstacles were recalled by speakers at the dedication.

Dr. M. R. Srinivasan, the Department of Atomic Energy's director of power projects engineering, reminded the audience, "There are some votaries of alternative energy systems who argue that it is better to harness wind, solar, biogas, and such resources rather than nuclear energy.

"Those who support a 'small is beautiful' concept in the energy sector are unwittingly consigning millions of people to a hopeless and miserable existence in perpetuity. A lot has been written about the risks of nuclear power or other forms of power, but hardly anything about the risks a majority of our population is facing all the time arising from having no power or energy."

"When we first embarked on our nuclear program," Mrs. Gandhi recalled, "most industrialized nations were very critical of us. Their disapproval, even hostility, continues. Cooperation is withheld, and solemn agreements [to supply fuel and spare parts] are lightly set aside."

She declared that India has reached a stage where nothing will be able to keep back Indian science and technology.

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