

## What's at stake?

How badly will India's space program will be affected by the ban? There is no question that India has advanced its research on cryogenic rocket engines significantly, and if the Russians back out, India's work will be set back about five years. On the other hand, the Indian space program has been strongly supported by the U.S. National Aeronautic and Space Administration (NASA) from the very beginning. The first rocket that India launched in 1963, when Dr. Homi Bhabha was in charge of the nascent space program, was donated by NASA. From then on, the U.S. had allowed ISRO to use transponders for unique instructional and communications experiments, and had built the four multi-purpose satellites in the INSAT-I series and launched three of them. An Indian astronaut had been scheduled to fly on the Space Shuttle, until the 1986 Challenger disaster. Such a close relationship had also developed a close mixing of technologies. Electronic components required for satellites constitute a major share of imports from the United States. Reports indicate that crucial processor chips on the onboard Altitude and Orbital Control System, radiation-hardened solar cells, detectors for meteorological instruments, among other items are also imported.

However, Dr. Rao seems to be optimistic. He said that if the ban continues, delays will occur in certain areas, "but we will have to do it [indigenous development] as a country." He also emphasized that there is no "technology problem," but to re-invent the wheel means delay and cost overruns. There are also expectations in the ISRO that many of the electronic components, if not all, imported from the United States can now be imported from other countries, meaning technology-fitting, and in the long run, greater cost and delays.

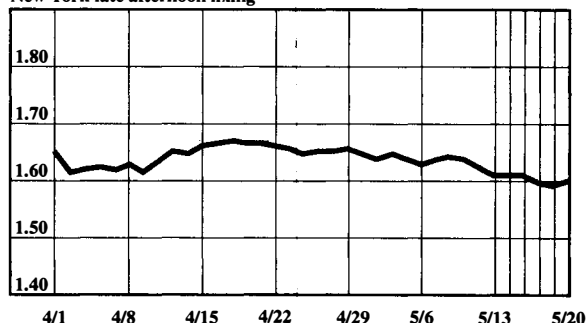
However, there are also fears that the United States may prevail upon other signatories of the MTCR to also ban the ISRO and Glavkosmos. State Department spokesman Margaret Tutwiler has already addressed the other signatories, telling them that "being a member of the MTCR or a signatory to it, you abide by the rules."

If the United States is able to pressure the signatories, the Indian space program will surely be affected. Its program for putting in orbit the latest series of satellites, INSAT-II, will be delayed, and so also the Polar Satellite Launch Vehicle development program. Since the INSAT series plays a significant role in India's economy, this will have a deleterious effect. There are also reports that the United States is shooting for a bigger game. The Indian newspaper carried an unconfirmed report which suggests that the U.S. Secretary of State James Baker had called upon Prime Minister Narasimha Rao to tell him that the U.S. is willing to lift the ban if India agrees to sign the Nuclear Non-Proliferation Treaty. Baker has apparently assured the Indian premier that, under such circumstances, the U.S. will be keen to supply India with the rocket technology if the U.S. Congress approves it.

## Currency Rates

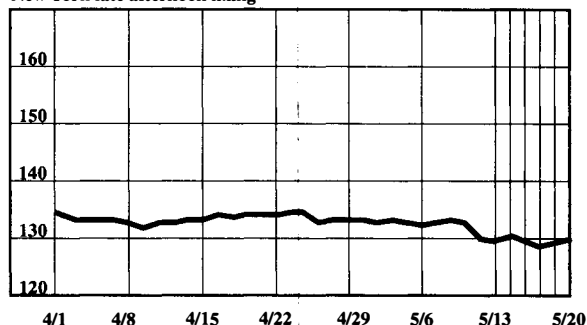
### The dollar in deutschemarks

New York late afternoon fixing



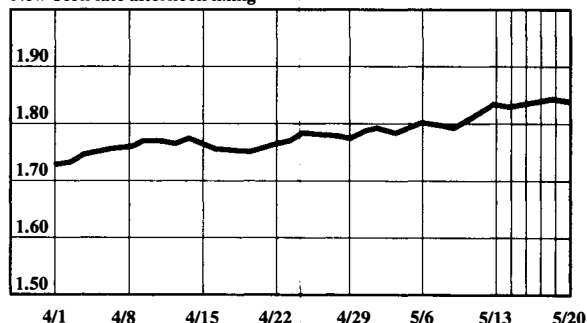
### The dollar in yen

New York late afternoon fixing



### The British pound in dollars

New York late afternoon fixing



### The dollar in Swiss francs

New York late afternoon fixing

