

# Editor's Note

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The three original articles in this issue span three general topics that have been featured in the journal in recent years—limits on nuclear weapon developments in the nuclear weapon states, nuclear nonproliferation, and the future and proliferation resistance of civilian nuclear power.

The first article, by Zia Mian, A. H. Nayyar, and R. Rajaraman, analyzes how uranium constraints could limit Pakistan's nuclear weapons development. Given international sanctions, Pakistan has had to rely on domestic uranium production both for its civilian power and weapon programs. For the latter, the uranium is used both for production of highly enriched uranium at Pakistan's centrifuge plants and for its plutonium production reactors. The authors consider varying possibilities of how Pakistan could allocate its domestic uranium in these respects and conclude that, without a significant increase in uranium mining rates or the use of more advanced weapon designs that use less fissile material, by 2020 Pakistan might have accumulated sufficient fissile material for 100–240 simple fission weapons based on HEU and approximately 100 plutonium weapons.

The second article by Thomas Cochran, Harold Feiveson, and Frank von Hippel continues the saga of the history of fast reactor developments worldwide. In our last issue, we published articles recounting the programs in France, India, and Japan. In this issue, we describe the rise and fall of fast reactors in the United States.

The third article, by Geoffrey Rothwell, puts a spotlight on the uranium enrichment market, and the tensions between the competitiveness of this market and international nonproliferation policy. The market is now dominated by four firms, the U.S. Enrichment Corporation (USEC), TENEX, the Russian enterprise, Eurodif/Areva of France, and Urenco, a consortium of Germany, the Netherlands, and the United Kingdom; and this concentration tends to keep enrichment-service prices higher than they would be in a fully competitive market where firms from other countries could freely enter. But, partly or largely for nonproliferation reasons, most countries wish to discourage other countries from entering the market. The author explores the tensions created by this situation and argues that some form of regulation may be warranted to discourage enrichment technology proliferation but at the same time to assure enrichment supply at reasonable prices.