



Non-Destructive Test and Evaluation of Materials. J. Prasad and C. G. K. Nair. Tata McGraw-Hill Publishing Company Limited, 7 West Patel Nagar, New Delhi 110 008. 2007. 177 pp. Price: Rs 495.

This is an introductory book in the field of nondestructive test and evaluation of materials. With their vast experience, the authors have made an attempt to introduce the subject in a simple but effective way. One important feature of the book is that nondestructive test and evaluation of composites, which are new materials, has been included. The book serves the purpose of initial familiarization to a person who is new to this field.

Five techniques, viz. radiography, ultrasonics, eddy current, magnetic particle and liquid penetrant are commonly practised. The authors have dealt with most aspects of these topics, starting from basic principles to the available calibration standards in some detail. The presentation is simple and clear. Further, under the section on radiography, topics such as radiation measuring devices, radiation protection and safety aspects of gamma-ray cameras have been included, which provide useful tips to practising engineers and technicians. Under the section on ultrasonics a brief presentation is made on the evaluation of composite materials with typical C-scan images, which gives the reader an idea of what to expect when one is dealing with such materials. However, if one is interested in an in-depth treatment, it would necessitate referring to other books dealing with individual techniques. The authors also briefly present topics dealing with the principles and applications of thermal infrared testing, acoustic emission and leak testing, probability of detection, and industrial applications of nondestructive evolution. Elaboration and inclusion of other aspects as has been done with the conventional techniques would have been more

beneficial to the readers. Overall the book provides a base for those being introduced to the subject for the first time.

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India: The Emerging Energy Player. Girijesh Pant. Pearson Longman (An Imprint of Pearson Education), 482 FIE, Patparganj, Delhi 110 092. 2008. 302 pp. Price: Rs 600 (hard bound).

That there will be uncertainty in the prices of energy in the future is a caveat that has found endorsement from all quarters of stakeholders, be it the World Bank, the International Energy Agency or the governments of the world. India is in no way different, and 'faces formidable challenges in meeting its energy needs and in providing adequate energy of desired quality in various forms in a sustainable manner and at competitive prices', states the Integrated Energy Policy 2006, Government of India. This brings into question the issues of energy security and strategic energy policy. Understanding energy relations in a capricious world is significant to devise approaches that attempt to maintain strategic global balance. And it is here that one finds the book by Girijesh Pant, to be of significance in influencing the energy discourse in India. This book is premised on the pronouncement that it is in India's concern to defend 'its energy interest in the changing world market'. This book deals with hydrocarbon markets (oil, natural gas) only.

Pant brings to the fore two important developments that have shaped the debate on energy security: discovery of new oil fields (like Caspian oil rigs), and technological changes that have made exploration easier and cost-effective. Added to these two aspects is the emergence of global/national strategic petroleum reserves (SPR), which have swayed oil prices time and again. This is one side of the argument for ensuring an energy-secure world. The other side to it is the increasing participants in the global energy market, as evidenced by the rise of Asia (as an ever-increasing consumer of

oil) and the growth of Russia and Africa (as new and dominant suppliers of oil). The enlargement of the community of stakeholders has created fissures in the trading regime – Middle East and Africa catering to Asian nations, while the Latin American nations (Mexico, Venezuela) supply to the United States. This rift engenders physical as well as distribution security concerns of oil resources. A concomitant issue in energy security is the volatility of prices of oil, and the declining clout of OECD nations to engage in cartelization and price-fixing. This has led to short-term price contract, with the consequence of becoming susceptible to price and supply shocks.

An interesting piece deliberated by the author refers to the hegemonic attitude of the US in furthering its interest in the hydrocarbon market. The US military is an oil-glutton, consuming around 150 million tonnes of oil per year. It is not surprising then that, '[I]like the weapons industry, the petroleum industry prospers on the revenue of conflict' (p. 20). A real upshot of this is the repeated lobbying by a group of stakeholders in exterminating all efforts to weaken the global hydrocarbon market, for environmental or other reasons. Pant's argument is that by annexing oil-rich regions, the US will be ensured of vital supplies, and this is the 'rationale for the US troops in Persian Gulf and the Central Asian region' (p. 20).

During India's formative years, the emphasis on the oil sector was to garner enough financial resources to exploit the nation's onshore and offshore resources. However, escalating economic growth soon surpassed domestic production, and India had to look for potential suppliers of oil. As the sixth largest consumer of world commercial energy, India imports oil from as many as 28 nations. The Middle East (Saudi Arabia, the UAE, Kuwait and Iran) accounts for a significant portion of our imports. This has increased India's dependency on a single region and amplified its vulnerability. A recent positive development is that India has started to diversify its supply sources by striking contracts with nations of Africa (Nigeria, Angola, Congo, Egypt) and Russia. Another encouraging sign of India's oil sector is that the country has become an exporter of value-added petroleum products, marking India's technical competence and efficiency. India's buyers include Sri Lanka, Nepal, Bangladesh