



# CUSIT-brary

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**City University of Science and IT**  
**Peshawar**

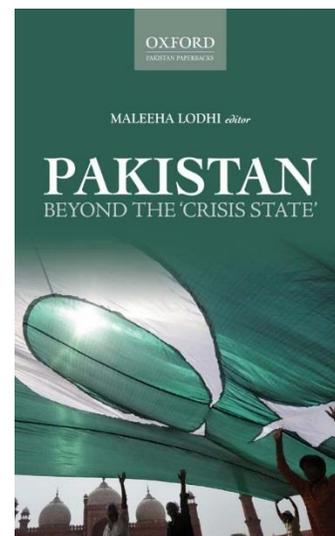
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## Book of the Month

# Pakistan: Beyond the 'Crisis State'

By Dr. Maleeha Lodhi



Pakistan's diversity and resilience have rarely figured in the single-issue focus of recent literature on the country. This book presents an alternate paradigm and a deeper understanding of the country's dynamics through an analysis of the Pakistan's political, economic, social, foreign policy and governance challenges. It also discuss issues the complex interplay between domestic developments and external factors including great power interests that are so central to the Pakistan story and explain the vicissitudes in its fortunes. 'An excellent book, one that brings out some very important points about the surprising stability of the country beneath the alarmism of the daily headlines, and forms a useful antidote to the general perception about Pakistan in the West.' Professor Anatol Lieven, King's College, London 'This timely study looks beyond the headlines of terrorism and natural disaster that dominate Western perceptions of Pakistan. The contributors argue that contemporary security challenges and longer-term demographic pressures and energy shortages can be overcome if Pakistan possesses the political will to undergo wide-ranging institutional, educational and structural economic reform.' Professor Ian Talbot, author, Pakistan: A Modern History

## AUTHOR DESCRIPTION

**Maleeha Lodhi** has twice served as Pakistan's Ambassador to the United States and the United Kingdom. She has been editor of two of Pakistan's leading daily newspapers, The News and The Muslim.

## Personality of the Month

# Samar Mubarakmand

**Samar Mubarakmand** is a Pakistani nuclear physicist known for his research in gamma spectroscopy and experimental development of the linear accelerator.



He came to public attention as the director of the test teams responsible for the performing the country's first and successful atomic tests at the Chagai Test Site, located in the Baluchistan Province of Pakistan. Prior to that, he was the project director of the integrated missile programme and supervised the development of Shaheen and Babur missile program. Serving the founding chairman of Nescom from 2001 until 2007, he was subsequently appointed by the government to assist the Thar coalfield project.

## Early life and education

Samar Mubarakmand was born in Rawalpindi, Punjab Province, British Indian Empire, on 17 September 1942. He earned his education from Lahore and matriculated from the St. Anthony's High School in 1956. After passing the university entrance exams, he enrolled at the Government College University where he studied physics under Dr. Tahir Hussain. In 1960, he graduated with BSc in physics with a concentration in experimental physics and a minor in mathematics. During his college years, Mubarakmand was an avid swimmer and represented GCU at the national games.

In 1962, he gained MSc in physics after publishing his thesis titled, "*Construction of a gamma-ray spectrometer*," under Dr. Tahir Hussain. In 1962, he joined the Pakistan Atomic Energy Commission (PAEC) and gained scholarship to study at the Oxford University in the United Kingdom. Recommended by Dr. Denys Wilkinson, he admitted at the Oxford University and joined the group led by Denys Wilkinson. At Oxford University, he took participation in preparing the 22 million volt atomic accelerator and was part of the team that commissioned it at the Oxford University.

During his time in Oxford, Mubarakmand learned about the linear accelerators, and after returning to Pakistan he built one. Apart studying, Mubarakamand

played cricket and bowled for the Oxford University Cricket Club. In 1966, Mubarakmand completed his doctoral thesis under dr. D.H. Wilkinson and was awarded DPhil in experimental nuclear physics.

After returning to Pakistan, Mubarakmand joined the PAEC and joined the faculty of Government College University as assistant professor of physics in 1966. From 1974–77, Mubarakmand taught physics at the Government College University and was an instrumental engaging research during his tenure as professor.

### **Pakistan Atomic Energy Commission (PAEC)**

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Upon returning to Pakistan, Mubarakmand did fundamental work on neutron spectroscopy but later moved onto Institute of Nuclear Science and Technology (PINSTECH) to do post-doctoral research and joined the physics department led by dr. Naeem Ahmad Khan in 1966. In 1967, he joined the "Nuclear Physics Group" (NPG) formed by Dr. Naeem Ahmad and had consisted Bashiruddin Mahmood and Hafeez Qureshi, a mechanical engineer.

At PAEC, Mubarakmand additionally worked towards applications involving in chemical engineering where he built his reputation among between his senior scientists The NPG worked towards engineering problems involving the reactor physics and the methods involving the gas centrifuges but the group did not last together when Hafeez Qureshi went to join Radiation and Isotope Applications Division (RIAD) in 1971.

### **1971 war and atomic bomb project**

In January 1972, Mubarakmand was assigned to Nuclear Physics Division (NPD) which was led by Dr. Ishfaq Ahmad where he immersed himself in work on the physics calculations in the implosion method. After India announced the surprise nuclear test in 1974, the PAEC accelerated the program by having established the Fast Neutron Physics Group (FNPG) on the advice of dr. Abdus Salam. Munir Ahmad Khan made Mubarakmand its first director due to his expertise in chemical engineering and experimental physics. The FNPG generated work calculating the neutron temperature, initiator, and helping designing the neutron reflector.

During the same time, he collaborated with Hafeez Qureshi to assist in designing the tamper and further helped conclude the calculation of neutron energy's distributive ranges and power produced by the neutrons, after the detonation process. In 1973, Mubarakmand commenced the work on calculations involving the relative simultaneity, a key concept involving to investigate detonation of the weapon from several points at the same time. However, the work

was passed to the Theoretical Physics Group led by Abdus Salam and Riazuddin as it felt that the calculations would be better off, as it involved complex ideas of theoretical physics and Einstein's Special and General relativity.

In 1987, Mubarakmand was posted at the secretive Directorate for Technical Development (DTD) a secret directorate that developed the explosive lenses and triggering mechanism for the fission weapon. He collaborated with Hafeez Qureshi and Dr. Zaman Sheikh and once regarded them as: "These (Engineering) people at DTD were really smart. They were trained very thoroughly in the development of a weapon's necessary materials at very low cost." After a 3-dimensional geological survey was completed in 1978, Mubarakmand first visited the Chagai Hills in 1981 with Dr. Ishfaq Ahmad and other scientists from divisions. In 1998, he was appointed as Member (Technical) at the PAEC and guided the Prime Minister Nawaz Sharif on experimental physics and test preparations. Mubarakmand assisted the government on evaluating the nuclear tests conducted by India in 1998 and personally supervised the test preparations at the Chagai. At the NSC's cabinet meeting, Mubarakmand backed Dr. Abdul Qadeer Khan's strong advocacy for conducting the tests, immediately calling for the decision to tests. On 19–20 May 1998, Mubarakmand led some 140 experimental physicists of his team to oversee the preparations in Chagai, Baluchistan, Pakistan where he personally supervised the complete assembly of all five nuclear devices. Mubarakmand himself walked a total of 5 km back and forth in the hot tunnels checking and re-checking the devices and the cables which would be forever buried under the concrete. On 28 May 1998, Mubarakmand led the countdown of the tests, codename Chagai-I, in Balochistan, Pakistan. Dr Samar Mubarakmand was called by PM Nawaz to Prime Minister House just after India conducted Pokhran II and PM Nawaz asked him the status of preparedness of Pakistan and (Dr Mubarakmand) assured PM Nawaz that scientists were ready and Pakistan could go for its first nuclear test.

On 30 May 1998, Dr. Ishfaq Ahmad cleared with the Prime minister, and Mubarakmand led the a very small team of academic scientists that supervised the country's plutonium fission weapon – codename Chagai-II.

### **State Honours**

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Mubarakmand has been conferred with state honors recognized for his services to the country by the Pakistan Government. He is the recipient of Sitara-e-Imtiaz (1993); Hilal-e-Imtiaz (1998); and Nishan-e-Imtiaz (2003) that is the highest civil honor of the country. In addition, he is a fellow of the Pakistan Academy of Sciences (PAS) and was inducted by Dr. Ishfaq Ahmadi in 2000.

- Nishan-e-Imtiaz (2004)
- Hilal-e-Imtiaz (1998)
- Sitara-e-Imtiaz (1993)
- PAS Nazir Ahmad Award (2005)
- International Scientist of the Year (2007)
- Life Member, Pakistan Nuclear Society
- Roll of Honour GCU (1962)
- Fellow, Pakistan Mathematical Society (2003)

## **APPLICATION OF INFORMATION TECHNOLOGY IN LIBRARIES**

Information is the key factor of any kind of research and development. Information is a fundamental resource which is essential for survival in today's competitive and wired world. The information itself and way it is accessed have undergone changes owing to the developments in information and communication technology. It is a vital ingredient for socioeconomic and cultural development of any nation or individual. According to Kemp "Information is considered as the fifth need of man ranking after air, water, food and shelter"<sup>1</sup>. The value of information in every human endeavor cannot be overstressed. Quick and easy access to every required information is a supreme importance especially for libraries<sup>2</sup>. Information technology application and the techniques are being used by the libraries for information processing, storage, communication, dissemination of information, automation etc. Further, origin of internet and the development of World Wide Web revolutionized the information communication technology. Recognizing the advantages application of information technology the libraries are essential to provide the facilities to their user community.

## **INFORMATION**

Information is universal- it is known to all men in all languages, there may or may not be precise or apt word in a language to describe the term 'information' but surely it is there. We receive the information throughout the day. According to Shannon and Weaver 'Information is any stimulus that reduces uncertainty'. Another definition by Ching- Chin Chen and Peter Herson defines information as "all knowledge, ideas, facts, data and imaginative works of mind which are communicated formally and or informally in any format".

## **INFORMATION NEED**

The Librarian's Thesaurus defines information need as "that need which library services or materials are intended to satisfy". Maurice B. Line has defined information need as, "what an individual ought to have for his work, his research, his edification, his recreation etc".

## **INFORMATION TECHNOLOGY**

a) According to the Webster's New encyclopedia, "Information Technology is the collective term for various technologies involved in the processing and transmission of Information they include computing telecommunications and microelectronics".

b) According to ALA Glossary "Information Technology as the application of computers and technologies to the acquisition, organization, storage, retrieval and dissemination of information".

c) According to the British Department of Industry, it defines Information Technology as "The acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by microelectronics based combination of computing and telecommunication".

## **APPLICATION OF INFORMATION TECHNOLOGY IN LIBRARY**

The library is the main information centre which can make use of the fast development IT for the benefits of mankind as a whole. The librarian's preference of IT should include all those technologies which are expected to be used in the library activities/ operations and other library services for collection, processing, storage, retrieval and dissemination of recorded information, the fast developing information technologies have showered almost every areas of application including libraries. In case of libraries, these are good use in the following environments.

a) Library Management: Library management includes the following activities which will certainly be geared up by the use of these fast IT developments: Classification, Cataloguing, Indexing, Database creation, Database Indexing.

b) Library Automation: Library automation is the concept of reducing the human intervention in all the library services so that any user can receive the desired information with the maximum comfort and at the lowest cost. Major areas of the automation can be classified into two -organization of all library databases and all housekeeping operations of library.

c) Library Networking: Library networking means a group of Libraries and information Centres are interconnected for some common pattern or design for information exchange and communication with a view to improve efficiency.

d) Audio-Video Technology: It includes photography, microfilms, microfiches, audio and tapes, printing, optical disk etc. e) Technical Communication: Technical Communication consisting of technical writing, editing, publishing, DTP systems etc.

**Some of the advantages of information technology include:**

- a. Easy to gather different library activities.
- b. Collaboration and creation of library networks
- c. Avoid repetition of efforts within a library
- d. Increase the range of services offered
- e. Save the time of the users
- f. Increases efficiency
- g. Speedy and easy access of information
- h. Improves the quality of library services
- i. Enhance the knowledge and experience
- j. Integration within the organizations.
- k. Improve the status of the library
- l. Improve the communication facilities
- m. More stable
- n. Helps to attract the users.

## **CLASSIFICATION OF INFORMATION TECHNOLOGY BASED SERVICES**

Computers: Computer-based technologies have become dominant forces to shape and reshape the products and services the academic library has to offer. The success of the IT enabled services in the library is based on the efficiency of the equipment provided in the library i.e. most modern technology, not on the basis of number of equipments.

b) OPAC: An Online Public Access Catalog (OPAC) is an online database of materials held by a library or group of libraries. Users search a library catalog principally to locate books and other material physically located at a library .

c) Union Catalogue: A union catalog is a combined library catalog describing the collections of a number of libraries. Union catalogs have been created in a range of media, including book format, microform, cards and more recently, networked electronic databases. Union catalogs are useful to librarians, as they assist in locating and requesting materials from other libraries through interlibrary loan service.

d) CD-ROM: Presents a state-of-the-art review of the applications of CD-ROMs in academic libraries, embracing all aspects of library involvement and staffing implications. Concludes that CD-ROM is having a huge impact on the way academic libraries function and the services they offer to their users .

e) Scanner: In computing, an image scanner—often abbreviated to just scanner—is a device that optically scans images, printed text, handwriting, or an object, and converts it to a digital image.. Mechanically driven scanners that move the document are typically used for large-format documents, where a flatbed design would be impractical.

f) RFID: Radio frequency identification is a term used for technologies utilizing radio waves for identifying individual items automatically. The most common way is storing a serial number identifying a product and related information on a microchip attached to an antenna. RFID is used very similar to bar codes.