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APJ Abdul Kalam: The People's President

... think scientifically, act scientifically... think scientifically, act scientifically... think scientifically, act...

Dr. APJ Abdul Kalam: The People's President

Dr. Anup Kumar Das
E-mail: anupdas2072@gmail.com

The eleventh President of India Bharat Ratna Dr APJ Abdul Kalam (1931-2015) was the finest technocrat, who led many high technology missions in taking the country on the path of self-reliance with home-grown technologies. His approaches were simple that led to the development of frugal indigenous solutions, instead of high-technology acquisitions from the developed nations.

Dr Avul Pakir Jainulabdeen Abdul Kalam was born on 15 October 1931 in a Tamil Muslim family at Rameswaram in Tamil Nadu state (then the Madras Presidency). His father Jainulabudeen was a boat owner and part-time imam at a local mosque while his mother Ashiamma was a caring homemaker. His father had a good rapport with local Hindu and Christian priests that imbibed Kalam with spiritual values and principles. Kalam recalls the nature of his father: "My father Jainulabudeen was not formally educated but was a man of great wisdom and kindness" .

Kalam completed his school education from Ramanathapuram Schwartz High School, where he showed the distinction of a hardworking student with special interest in mathematics. He then studied graduation in physics at Saint Joseph's College at Tiruchirappalli in Tamil Nadu, which was then affiliated to the University of Madras, and he completed his first degree in 1954. After his BSc degree, he enrolled in a degree course in aeronautical engineering at Madras Institute of Technology in Tamil Nadu. He completed engineering education in 1958. His priority was to join Indian Air Force (IAF) as a fighter pilot soon after completion of his engineering education, but he narrowly missed it. Instead, he joined the Defence Research and Development Organisation (DRDO) as a junior scientist at the Aeronautical Development Establishment in Bangalore in 1958, where he was involved in research and development of fighter airplanes for the IAF.

In 1963, he was selected to join the Indian Committee for Space Research (INCOSPAR) in a position of a rocket engineer. INCOSPAR was the predecessor

President Dr APJ Abdul Kalam addressing the nation on the eve of 58th Republic Day in New Delhi on January 25, 2007 (Credit: Photodivision.gov.in)

to Indian Space Research Organisation (ISRO) led by Professor Vikram Sarabhai. Soon after joining at INCOSPAR, Kalam was nominated for a six-month training programme on sounding rocket launching techniques at the National Aeronautics and Space Administration (NASA) in the United States. He joined advanced training programme at NASA in 1963 and received practical training at various R&D centres of NASA such as the Langley Research Centre at Hampton, Virginia, and the Goddard Space Flight Centre at Greenbelt, Maryland. His training at NASA became very fruitful while he served as one of the chief architects of now flourishing Indian space programme. He took a leadership role in development and launching of India's first indigenous Satellite Launch Vehicle (SLV-3), which placed Rohini RS-1 satellite into Earth orbit in July 1980. SLV-3 was a historical achievement for India, as the country entered the elite space club. Kalam was fortunate to received affectionate mentorship during his scientific career from renowned Indian scientists such as Professor Vikram Sarabhai, Professor MGK Menon, Professor Satish Dhawan and Professor Raja Ramanna.

After his stint at the ISRO for about two decades, he moved back to DRDO in 1983 as its Chief Executive to lead the Integrated Guided Missiles Development Programme (IGMDP). Under his leadership, the IGMDP developed and operationalised the *Agni* and *Prithvi* missiles during the 1980s for building indigenous capability in critical technologies. After the success of IGMDP programme, Kalam was elevated to the position of the Chief Scientific Adviser to the Prime Minister and the Secretary of the DRDO and served te country between July 1992 and December 1999. Subsequently he also served as one of the Chief Project Coordinators in the Operation Shakti (Pokhran-II) nuclear tests in 1998, which received global attention as India became a full-fledged nuclear state in order to strike a balance to achieve regional stability and peace.

Kalam with young dancers in Singapore (Credit: Photodivision.gov.in)

Kalam served as Chairman of the Technology Information Forecasting and Assessment Council (TIFAC), an autonomous organisation under Ministry of Science and Technology while his co-author of many books Professor YS Rajan was its Executive Director. During 1990s, TIFAC was engaged in Technology Vision

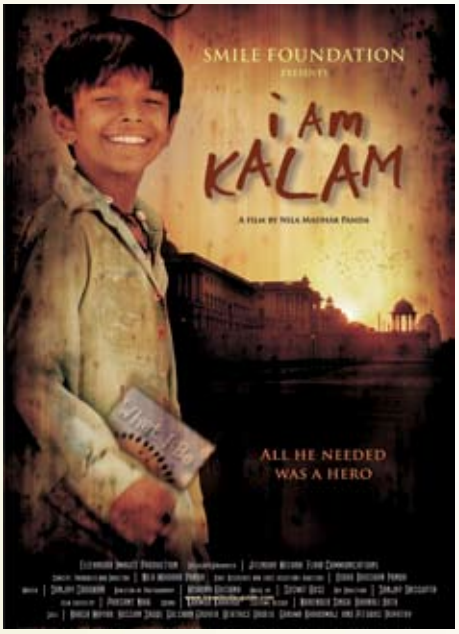
2020 exercise for India with an objective of "Transforming the nation into a developed country, with five areas in combination having been identified based on India's core competence, natural resources and talented manpower for integrated action to double the growth rate of GDP and realise the Vision of Developed India." The identified areas were namely:

- "Agriculture and food processing, with a target of doubling the present production of food and agricultural products by 2020. Agro food processing industry would lead to the prosperity of rural people, food security and speed up the economic growth;
- Infrastructure with reliable and quality electric power including solar farming for all parts of the country, providing urban amenities in rural areas and interlinking of rivers;
- Education and healthcare, to provide social security and eradication of illiteracy and health for all; and
- Information and communication technology: This is one of our core competencies and wealth generators. ICT can be used for tele-education, tele-medicine and e-governance to promote education in remote areas, healthcare and also transparency in the administration;
- Critical technologies and strategic industries witnessed the growth in nuclear technology, space technology and defence technology."

The book titled *India 2020: A Vision for the New Millennium* was a refinement of the series of "Technology Vision 2020" documents published by TIFAC. Kalam and Rajan wrote a touching dedication to the book:

After one of the talks delivered by Dr. Kalam, a ten-year-old girl came up to him for his autograph. 'What is your ambition,' he asked her. 'I want to live in a developed India,' she replied without hesitation. This book is dedicated to her and the millions of Indians who share her aspiration.

Kalam was popularly known as "the People's President" and "Missile Man of India" for divergent reasons. In an obituary, renowned journalist Mark Tully



A Poster of the Film "I Am Kalam" inspired by life of AJP Abdul Kalam

acknowledges: "He became known as the "People's President" because he welcomed the public into the palace in New Delhi (built for the last of the viceroys by the British architect Sir Edwin Lutyens) and made himself accessible whenever he travelled". Tully further described Kalam as one who played a crucial role in India's most successful technological programmes such as development and launching of the SLV-3, and indigenous guided missiles that earned him a coveted title "Missile Man of India". His leadership style was very unique and exemplary, as it was documented in a research paper titled "Visionary Leadership: A Survey of Literature and Case Study of Dr APJ Abdul Kalam at DRDL" by RS Dwivedi (*The Journal of Business Perspective*, 10(3), 11-21, 2006).

Kalam helps students at the inauguration of speech applet 'Virtual Vision' software for visually challenged students (Credit: Photodivision.gov.in)

During his presidency (2002-2007), Kalam evolved many innovative ideas for sustainable development and peoples' empowerment, to be implemented by the national and local governments, including the Providing Urban Amenities in Rural Areas (PURA). PURA became a central scheme titled 'Provision of Urban Amenities in Rural Areas' in 2010 led by Ministry of Rural Development and implemented on pilot basis under a public-private partnership (PPP) framework during the 11th Five Year Plan.

He was bestowed Bharat Ratna, the highest civilian honour, in 1997 by Government of India for his leadership roles in attaining the country's scientific and technological competencies. He was earlier awarded two other coveted civilian honours the Padma Bhushan in 1981 and the Padma Vibhushan in 1990. He became an elected Fellow of the national academies such as the Indian National Academy of Engineering (INAE), the Indian Academy of Sciences Bangalore (IAS), the National Academy of Sciences of India (NASI), and an honorary fellow of the Institution of Electronics and Telecommunication Engineering (IETE). He also received honorary doctorates from many universities in India and abroad, such as, Aligarh Muslim University, India; Edinburgh University, UK; University of Wolver Hampton, UK; Simon Fraser University, USA; Oakland University, USA; Carnegie Mellon University, USA; University of Waterloo, Canada; and Nanyang Technological University, Singapore. He remained a bachelor throughout life.

Kalam had proved himself as an accomplished writer. He has written more than twenty books, although an official webpage of the former President (on Abdulkalam.nic.in/books.html) enlists thirteen books written by him. His works can be categorised in three genres, namely, autobiographical, futuristic or visionary, and inspirational. He wrote two autobiographical books, namely, *Wings of Fire: An Autobiography* jointly written with Arun Tiwari (1999) and *Turning Points: A Journey through Challenges* (2012). His inspirational book titles are similar to

the topics of his public lectures he loved to deliver in the assemblies of school, college and university students and youth citizens of India to ignite a dream for a developed nation in near future.

Many of his writings are highly rated or reviewed by the book readers. The top five books based on readers' choice at GoodReads.com website, which facilitates the readers and booklovers to rate and review a published book, are: *Wings of Fire: An Autobiography* (1999); *Ignited Minds: Unleashing the Power within India* (2002); *Turning Points: A Journey through Challenges* (2012); *India 2020: A Vision for the New Millennium* jointly with YS Rajan (1999); and *My Journey: Transforming Dreams into Actions* (2013).

The top five books, based on the number of citations each book received as reflected on Google Scholar search engine, are: *India 2020: A Vision for the New Millennium*; *Ignited Minds: Unleashing the Power within India*; *Wings of Fire: An Autobiography*; *Target 3 Billion: Innovative Solutions Towards Sustainable Development* jointly with SP Singh (2011); and *Envisioning an Empowered Nation: Technology for Societal Transformation* jointly with AS Pillai (2004).

In addition to the above-mentioned books, Kalam wrote a few more visionary and inspirational books for the Indian youth, namely, *Reignited: Scientific Pathways to a Brighter Future* jointly with SP Singh (2015); *Beyond 2020: A Vision for Tomorrow's India* jointly with YS Rajan (2014); *A Manifesto for Change: A Sequel to India 2020* jointly with V Ponraj (2014); *The Scientific Indian: A Twenty-first Century Guide to the World around Us* jointly with YS Rajan (2011); and *Mission India: A Vision for Indian Youth* jointly with YS Rajan (2005).

In a highly acclaimed feature film *I Am Kalam*, directed by Nila Madhab Panda and produced by Smile Foundation, a child labourer inspired by life of Abdul Kalam dreams to become an educated citizen overcoming all odds in his early life. The movie trailer further describes *I Am Kalam* as "an endeavour in championing the cause of empowering underprivileged children through education. Moreover, the heart-warming tale celebrates the survival of the human spirit against overwhelming odds" (Available at http://vimeo.com/120668088). Harsh Mayar, who acted the main character of Chhotu in the film, received the National Film Award for Best Child Artist in 2011.

Kalam will be remembered by Indian children, youth and knowledge workers, who aspire to live in a developed India and make India a self-reliant nation. He further ignited minds of many youths with his many famous quotes. An example is given here from the book *Ignited Minds: Unleashing the Power within India*:

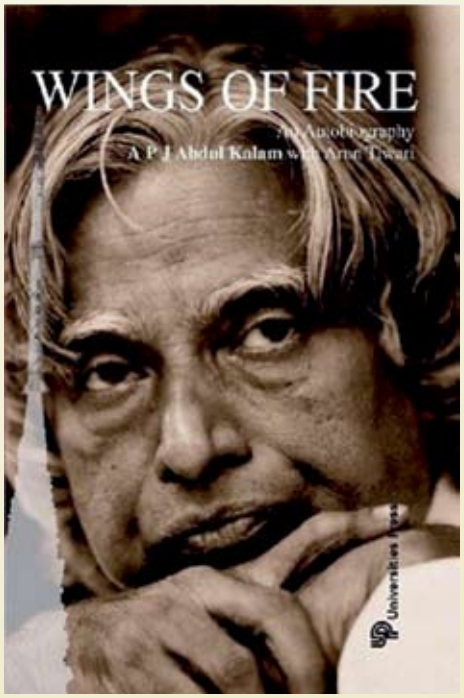
"Dream, Dream, Dream
Dreams transform into thoughts
And thoughts result in action."

Another of his oft-quoted quote is:

"Dream is not that which
you see while sleeping
It is something that does not let you sleep."

Timeline Dr APJ Abdul Kalam

1931	Born on 15 October at Rameswaram in Tamil Nadu, India. Mother: Ashiamma, Father: Jainulabudeen.
1954	Completed B.Sc. in Physics from Saint Joseph's College at Tiruchirappalli in Tamil Nadu, affiliated to University of Madras.
1958	Completed Engineering degree in aeronautical engineering from Madras Institute of Technology (MIT) in Tamil Nadu.
1958	Joined the Aeronautical Development Establishment of DRDO in Bangalore as junior scientist.
1963	Joined the Indian Committee for Space Research (INCOSPAR), predecessor of ISRO, as rocket engineer.
1963	Joined advanced training programme at NASA and received practical training at various R&D centres of NASA.
1980	Led launching of India's first Satellite Launch Vehicle (SLV-3), which placed Rohini RS-1 satellite into earth orbit on 18th July. India became a member of the elite space club.
1981	Conferred the Padma Bhushan.
1983	Joined as Chief Executive of the Integrated Guided Missile Development Programme (IGMDP) of DRDO, the Ministry of Defence.
1990	Conferred Padma Vibhushan.
1992	Became the Chief Scientific Adviser to the Prime Minister and the Secretary of DRDO and served till 1999.
1997	Conferred Bharat Ratna.
2002	Became President of India and served till 2007.
2015	Died on 27 July; Collapsed due to heart failure while delivering a speech at Indian Institute of Management Shillong in Meghalaya, India.



Cover Page of "Wings of Fire: An Autobiography"

Dr. Anup Kumar Das is attached with the Centre for Studies in Science Policy in Jawaharlal Nehru University (JNU), New Delhi, India.