By Deba R Mohanty

The latest Sukhoi T-50 prototype—PAK-FA—a twin-engine fifth-generation stealth jet fighter aborted a takeoff at the recently held MAKS Airshow outside Moscow on August 21, 2011, after four days of successful demoflights. While two prototypes of PAK-FA have cumulatively made 48 flights since January 29, 2010, it will be important to know the reasons for thismishap.

Comparison between the T-50 and its counterparts from the West, for example the F-22 Raptor, suggest three primary areas of interest. First,fifth-generation aerospace technologies, primarily involving improvements in stealth, super cruise, composites, engine thrusts and avionics, are in demand, although some argue that improved unmanned systems could eventually replace these big birds in the future; second, inter-twined escalated costs and innovations put a premium on the buyers whose numbers are shrinking and hence a fierce competition among the producers; and third, there is less visibility in technology diffusion than what is claimed by the producers.

India has recently decided to partner Russia in a joint project known as Fifth Generation Fighter Aircraft (FGFA) project. It is to be noted that the FGFA will be a derivative of T-50 PAK-FA, which effectively rules

out an option for India of going for either the F-22 Raptor or a possible partnershipfor the F-35 JSF. As recently as on August 8, the minister of state for defence, MM Pallam Raju, answered a parliamentary query on the status of FGFA: "A Preliminary Design (PD) contract has been signed between HAL and Rosoboronexport, Russia on 21st December, 2010 for implementation of design & development of Prospective Multi-Role Fighter (PMF) Aircraft programme by Hindustan Aeronautics Limited (HAL) jointly with Sukhoi Design Bureau(SDB) of Russia at a cost of $295 million. Full scale Design &Development work will be taken up under a separate contract. Presently a requirement of around 250 fighter jets with induction in Indian Air Forcefrom 2018 onwards is envisaged".

The reported cost of 250 such fighters will be anything between $25bn and $30bn by 2030. As PAK-FA's eventual success will heavily impinge on the FGFA, it is time to evaluate India's decision in an objective manner. On the positive side are six factors. First, the need for involvement in a fifth-generation technology programme for India is a logical step forward, not only for possession of an adequate number of frontline fighters in its aerospace arsenal but, more importantly, for its indigenous fighter programme like Tejas that necessitates a graduation to the next level.

Second, comparative costs and need-based rationalisation of technology options would make FGFA as a reasonable competitor vis-à-vis existing products in the global market. Third, a possible Brahmos-like joint venture for FGFA as envisaged between India and Russia would be

the second of its kind, benefits of which would be far more valuable than any other joint technology project executed thus far. Fourth, the Indian 'arms card', defined as the 'abilities to utilise financial strengths to gain industrialand technology dividends', can woo western countries to offer similar defence related high-tech projects in time to come. Fifth, FGFA is likely to take the bilateral scientific and industrial communities to a new level of involvement, beyond mere exchanges of technical notes and licenced production. And last but not the least, fifth-generation technologies have been largely confined to an action-reaction cycle between the West and Russia. As a passive entrant, India could eventually aspire to be a player in the game.

However, such optimistic projections are tempered by limitations at a fudamental level. First, existing Indian aerospace capabilities are limited,except for a few pockets of excellence like in avionics and composites. Second, the Indian involvement in the FGFA project is very limited,considered to be less than 25% in design and development. Even within design and development, its contribution is limited to a few areas like navigation system, cockpit display, critical software and composites. Third, learning and integrating experiences from Tejas, Kaveri and Su-30MKI into a project like FGFA could prove to be a difficult proposition. Fourth, even though the comparison between PAK-FA and FGFA is considered to be somewhat similar to the comparison between Su-30M (for Russia) and Su-30MKI (for India), much would depend on how the preliminary design worksprogress. It would be interesting to see whether India goes beyond limited contribution to get involved in aero-engine, airframe or similar complextechnologies. Fifth, a state-blessed FGFA project leaves almost no leverage for aspiring Indian private contractors to get a reasonable share of the pie. How much work would players like Mahindra Aerospace, Jubilant Aerospace, Taneja Aerospace or Dynamatic Technologies get from the FGFA remains to be seen. Even Indian small and medium enterprises will remain as ancillary suppliers to the prime contractor (state-owned HAL forms the Indian side) for the project. And last, much of the design and development work, including innovation, will be confined to the project leaders like the DRDO, HAL and Bharat Electronics Limited.

Nevertheless, a project like FGFA is a rarity, like Brahmos, that India can ill afford to lose. Prudence would demand employment of a realist strategy of engagement by India in convincing the Russians to expand the scope of involvement,encourage the Indian private players and must consistently strive to gain as much knowledge as it can.

First published in the Financial Express, New Delhi. The author is a senior fellow in security studies at the Observer ResearchFoundation. These are his personal views.